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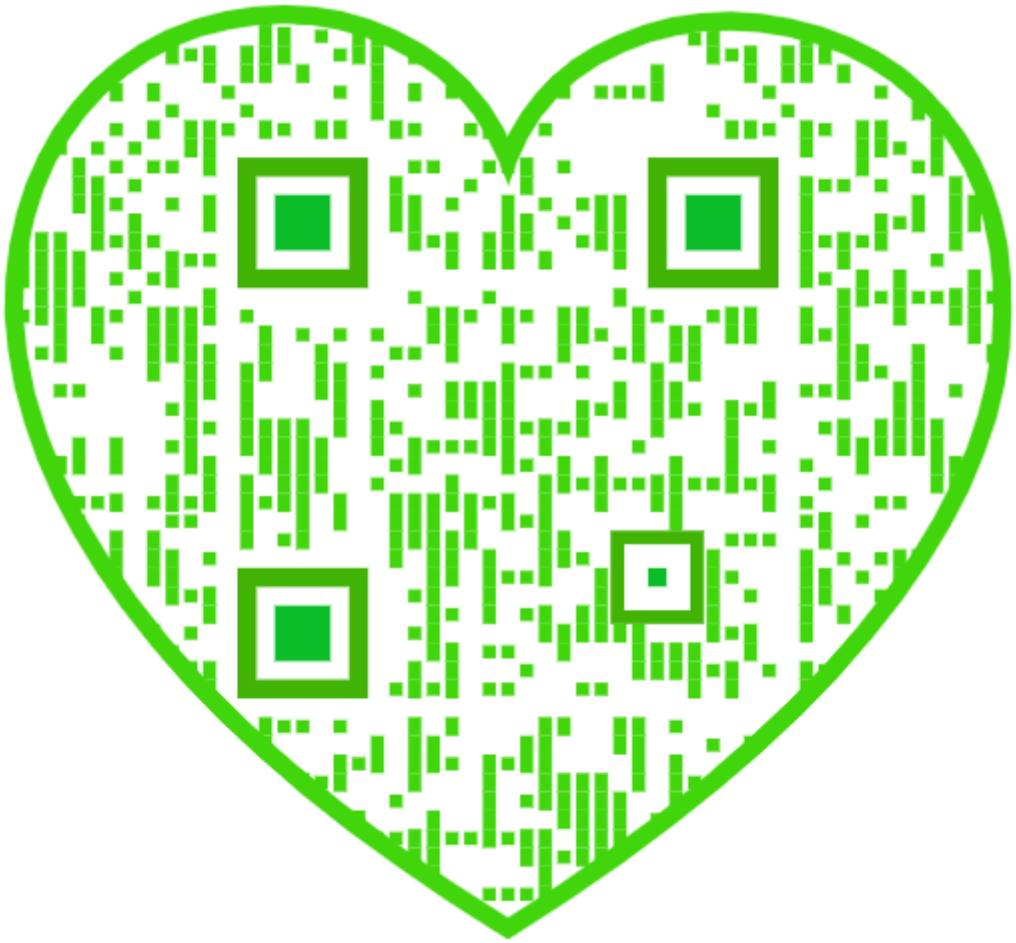

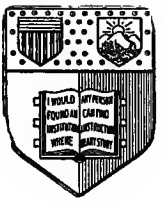

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CONSERVATION OF THE HEALTH OF DOMESTIC ANIMALS.

HOUSE OF COMMONS,
COMMITTEE ROOM 34,
OTTAWA, FRIDAY, May 4, 1906.

The Select Standing Committee on Agriculture and Colonization met here this day at 10 o'clock a.m., Mr. McKenzie, chairman, presiding.

Dr. RUTHERFORD, Veterinary Director General, appeared before the Committee by request and was examined as follows:—

Mr. Chairman and Gentlemen:—I have here a short introductory statement which I would like to read to the Committee. I have notes upon a variety of subjects which the Committee may afterwards desire to discuss and the selection of which can be left to them.

ORGANIZATION OF THE HEALTH OF ANIMALS BRANCH.

Although it is now a little over four years since I entered upon the duties of my present position, this is the first occasion upon which I have had the honour of appearing in person before this Committee to give an account of the manner in which they have been performed.

Those members who have read the statements which I have submitted each year and which form part of the annual report of the Minister, are aware that the period mentioned has witnessed several important changes of policy and that whatever else may be charged against that branch of the public service which is under my supervision, it cannot reasonably be accused of inactivity.

DUTIES OF OFFICERS.

The duties of the officers under my charge are twofold, and comprise first, the enforcement of measures intended to prevent the introduction to Canada of contagious diseases affecting animals and second the adoption of the best and most effective methods of controlling and where possible eradicating such maladies as already have an existence among the live stock of the country.

Previous to my appointment the supervision of these duties formed part of the work of the official staff of the department acting under the advice of the then Chief Veterinary Inspector who, owing to non-residence and other reasons, was not in a position to act in an executive capacity.

Acting under instructions from the Minister, I began immediately after entering the service to establish the Health of Animals Branch and to recognize the veterinary work of the department on entirely new lines.

This departure has entailed considerable effort and while present conditions leave very much to be desired I hope to be able to show that the change has been beneficial and that reasonable progress has been made in the direction of securing an effective and satisfactory veterinary service. It is easy and by no means unusual to underestimate the importance of this branch of the public service, for the reason that so long as its work is effectively performed it attracts, in the very nature of things, but little attention. It is only when some destructive disease has obtained a foot-hold among the live stock of a country that the public realizes to what an extent it is depend-

ent upon the organization controlling such matters. It is not advisable, for obvious reasons, to attract public attention to the presence of disease so long as all proper means are being used to keep it under control, and in this way a well-conducted veterinary sanitary service is characterized by an absence of that publicity which does so much to attract favourable attention to many other branches. Again, it is naturally an unpopular service because of the fact that it is impossible to put into effect any regulations for the prevention or control of animal diseases without interfering with the business of some individual or perhaps blocking for a time at least, the ordinary channels of trade. In this age of enlightenment it is seldom that people object seriously or in any great numbers to the enforcement of measures deemed necessary to prevent the spread of contagious disease among human beings, but there are many persons, particularly in Canada, who, having but little experience of animal plagues, do not as yet fully appreciate the importance of dealing with them in a thorough and drastic manner.

IMPROVEMENT OF THE SERVICE.

In a general way, every effort has been made to improve the service and increase its efficiency.

The Animal Contagious Diseases Act has been revised and amended, with the result of making its provisions in many respects more workable. New regulations for the control of contagious diseases have been drafted and brought into force.

Bulletins have been issued as occasion demanded and no reasonable effort has been spared in the dissemination of useful information regarding the different maladies dealt with by the department.

An earnest endeavour has been made to keep pace with the rapid development of the country and the large increase in its live stock interests. A number of new inspectors have been engaged, and to as great an extent as possible they have been personally instructed in their various duties. In this connection I would say that great care is necessary in the selection of these men. The fact of a man being an experienced or skilful practitioner is no guarantee of his suitability for sanitary work. To fill the position acceptably, a veterinary must have certain attributes often lacking in the ordinary veterinarian, and it is no easy matter to find individuals who, while capable professionally, are also possessed of these special qualifications which include, among others, tact, suavity, integrity, and above all else, sound common sense.

For various obvious reasons it is not desirable, except under special circumstances, to employ as inspectors, veterinarians engaged in general practice.

The men best suited for the work are recent graduates of good class, having the various qualities mentioned above, not yet narrowed by local practice, sufficiently well equipped as to general education to be able to comprehend the scientific details of modern sanitary and preventive work, and if possible without encumbrances which may hinder their rapid transfer from place to place as outbreaks of disease or changing conditions in this vast country demand.

Such men are scarce in any country, and in Canada, perhaps especially so, for reasons on which I need not here dwell.

When once secured and properly trained, a good veterinary inspector is a valuable asset and should be treated accordingly. He must be paid sufficiently well to induce him to remain in the service, and to improve himself with a view to promotion, and he must be guaranteed permanent employment. In most other countries, notably in the United States, veterinary inspectors are required to pass a qualifying examination before being appointed. After appointment and proof of ability to render satisfactory service, they are permanent employees, and cannot be removed except for just cause.

The adoption of some such system in Canada would be a great advantage to the service and, through it, to the large and rapidly growing live stock interests of the country.

APPENDIX No. 2

As it will be quite impossible to give, in the short time at the disposal of the committee, a detailed account of the work done during the past four years, I will, with your permission, confine myself to a short statement covering the principal points, first, in connection with the quarantine against outside countries, and afterwards dealing as briefly as possible with each of the various diseases towards the control of which our efforts are being directed.

QUARANTINE PORTS.

The outside quarantine service of the Dominion is naturally divided into two branches, one of which is intended to guard against the introduction of disease from Europe and other countries over seas, while the other is maintained for the purpose of preventing the importation of diseased animals from the United States.

The ports available for the importation of animals from countries other than those of North America are Halifax, St. John, Charlottetown and Quebec, on the Atlantic seaboard, and Vancouver and Victoira on the Pacific coast; the two latter however, being naturally but seldom used except for animals entering from the United States. Of the Atlantic ports mentioned the quarantine station at Quebec is by far the most important, as it is there that the majority of animals imported from Europe enter Canada during the season of summer navigation. This station, which has been in existence since 1876, is situated within the yard of Fort No. 3 at Point Lévis, and, while the buildings are inexpensive, it is well planned, and has long been ably conducted by Dr. Couture and a staff of permanent employees under his control. It furnishes accommodation for nearly 500 cattle and about 300 sheep, and is laid out so as to permit of the absolute isolation of the stock of each importer. Its situation is excellent, and it would be an ideal quarantine station were it not for the fact that under existing conditions animals, after landing, must be driven for a considerable distance over the public highway before reaching their quarters. Owing to the peculiar topographical conditions it has until recently been practically impossible to remedy this state of affairs. Latterly the construction of the Lévis Electric Railway has suggested the possibility of conveying the animals direct from the wharf to the station by means of electric traction. The adoption of this plan would render the establishment one of the safest and most perfect quarantine stations in the world, and would greatly lessen the risk of conveying infection to animals in the neighbourhood.

At Halifax I found the remains of a quarantine station which had for some time existed on the Dartmouth side of the harbour, having been constructed there at a time when it was possible to reach it by means of a bridge which has since been destroyed. Finding that the buildings were badly out of repair and that it was impossible to reach it by rail from the deep water terminus, except via Windsor Junction, which entailed a long and expensive journey, I have, with the approval of the minister, succeeded in securing a suitable site in the city of Halifax on the cotton factory siding, easily accessible by rail from deep water. On this property, which is admirably suited for the purpose, a new and commodious quarantine stable has been erected, which will, I think, furnish sufficient accommodation for the comparatively small number of animals which enter via this port.

At St. John, New Brunswick, I found that the department had no regular quarantine station, and that the only accommodation for animals was furnished by a small plot of ground and several very ordinary buildings situated on the outskirts of the city, and held under lease by the department. As this station also could only be reached by driving imported animals through the public streets I thought it advisable to secure more suitable premises. After experiencing considerable difficulty in the selection of a site, a plot of ground five and three-quarter acres in extent has been leased at a nominal rental from the Department of Railways and Canals. This, like the new grounds at Halifax, is situated on a railway siding, so that animals landing at St. John can now be conveyed to the quarantine without being allowed to come in contact with any

animal or thing likely to be the means of spreading disease. Two stables are in course of erection and the new station will, if all goes well, be ready for occupation almost immediately.

At Charlottetown, Prince Edward Island, where imported stock is seldom landed, it has not been found necessary to establish a permanent quarantine station, although an inspector is employed at that point.

At Victoria, British Columbia, a lease has been secured of a small property at a point near the outer wharf. On this property are situated some old buildings used in former years by the department for quarantine purposes. These have been put in repair and slightly altered so as to furnish accommodation for any animals arriving from the United States, which it may be found necessary to place in quarantine.

At Vancouver no station has as yet been erected owing to the uncertainty of local railway construction and the location of new stock yards at that point. As soon as these matters are settled it is the intention to construct at Vancouver a station similar to those which have been erected along the International boundary line in British Columbia and which I will shortly describe.

IMPORTATIONS FROM THE UNITED STATES.

The quarantine service along the boundary between Canada and the United States was found to be defective in a variety of ways, and since assuming office it has been necessary to devote each year a good deal of attention to its improvement. In Eastern Canada the number of animals imported from the United States is very small and it has not, therefore, been thought necessary or advisable to go to any great expense in the construction of quarantine stations, which, under existing regulations, are, with the single exception of that at Sarnia, used only for the accommodation of swine imported for breeding purposes. Range horses imported from west of the Mississippi river, and of the eastern boundary of the state of Minnesota, are admitted at Sarnia, while swine must enter at quarantine stations; all other animals can enter at inspection ports east of Rainy river without being subjected to quarantine.

In addition to Halifax, St. John, Charlottetown and Quebec, at which, of course, animals from the United States will be received when necessary, the quarantine stations in Eastern Canada are Sherbrooke and St. Johns, Quebec, Niagara Falls, Windsor and Sarnia, in Ontario. At Windsor and Niagara Falls small buildings have been erected by the department. At Sherbrooke a site has been secured on which it is proposed to build a small stable; while at St. Johns the number of animals brought in is so limited that it has scarcely been considered advisable to make permanent provision for their accommodation. Animals subject to inspection only, but which are not subject to quarantine, may enter at any of the aforesaid ports, as also at Pictou, North Sydney and Yarmouth, N.S., St. Stephens, Woodstock and McAdam Junction, N.B., Comin's Mills, Lake Megantic, Coaticook, Stanstead Junction, Mansonville, Abercorn, St. Armand, Rouse's Point, Athelstane and Dundee, Que., Cornwall, Prescott, Brockville, Toronto, Bridgeburg, Sault Ste. Marie, Port Arthur and Rainy River, Ont., although, with the exception of horses originating in the eastern United States and some varieties of stock passing through Canada in transit to United States ports, they must be examined by one or other of the qualified veterinary inspectors of the department.

In Western Canada, owing to the large importations of live stock and the peculiar local conditions, it has been found necessary to amend in several important respects the quarantine regulations which were in force four years ago.

The institution of careful inquiries as to the origin of outbreaks of disease having disclosed the fact that diseased animals were being imported from the United States, it was decided to put an end to the 'let pass' system, which enabled animals to cross the boundary at any point, on condition of reporting at the first custom-house which they might reach.

Quarantine stations have accordingly been established at North Portal, Wood Mountain, Willow Creek, Pendant d'Oreille, Coutts and Twin Lakes, and at each of

these points a veterinary surgeon is located. No live stock of any kind is permitted to cross the boundary at any other point in Saskatchewan and Alberta.

In Manitoba, a similar quarantine station has been erected at Emerson, the premises formerly used there being situated at some distance from the railway and several miles from the boundary.

Owing to local railway conditions, however, it has not hitherto been possible to prohibit altogether the entry of settlers' stock, and of some other classes of animals, at various inspection points in this province, although all unbroken horses, and all swine, are compelled to enter the country at Emerson.

The inspection ports referred to are Gretna, Morden, Mowbray, Crystal City, Killarney, Deloraine, Melita and Winnipeg.

In British Columbia, stations have been erected at Gateway, Nelson and Midway, while inspectors are also stationed at Grand Forks and Osoyoos. Quarantined corrals have been erected by the railway companies at Sumas and Douglas, animals being inspected there before crossing the boundary, it being the intention, as above stated, to provide in the near future, a quarantine station at Vancouver, which will serve, not only for animals brought in at these points, but for such as may arrive by boat.

It will probably be necessary in the near future, to construct quarantine stations at Princeton and Grand Forks, while provision will have to be made for the inspection of animals entering at Kingsgate, over the new Canadian Pacific Railway line from Spokane.

REGULATIONS.

The order in council embodying Animals Quarantine Regulations having been passed in 1897, it was found necessary, in order to meet altered conditions, to amend its provisions from time to time, and finally, in order to prevent confusion and misunderstanding, a new order was passed and came into effect on March 30, 1904.

PERMITS TO IMPORT.

Among the most important changes was one providing that intending importers from countries other than the United States should first obtain a permit from the Minister of Agriculture, as only in this way is it possible for the department to prevent, without attracting undue attention, the importation of animals from countries in which disease may happen to exist. It is also a means of furnishing very necessary advance information as to the number and classes of animals likely to be imported, and the quarantine station at which their owners decided to have them detained.

PERIOD OF QUARANTINE.

The period of quarantine on cattle imported from Great Britain, Ireland and the Channel Islands, has been reduced from ninety to sixty days, while remaining at the former figure in the case of animals imported from other countries.

Cattle six months old or over imported from countries other than the United States and Mexico, are now submitted to the tuberculin test while undergoing quarantine, those reacting being permanently earmarked. Clinical cases may be slaughtered, as formerly, without compensation.

HORSES.

Western range horses, if broken, may be admitted at any quarantine or inspection port, the inspectors, however, having the power to detain them, and deal with

them as circumstances may render advisable. Unbroken range horses can enter only at quarantine stations and must be accompanied by a health certificate signed by either a federal or state inspector, but shall nevertheless be subject to detention, dipping, testing with mallein, or other treatment which the inspector may consider necessary.

SWINE.

All swine entering from the United States must now be accompanied by a certificate signed by an inspector of the United States Bureau of Animal Industry stating that neither swine plague nor hog cholera has existed within a radius of five miles of the premises in which they have been kept for a period of six months preceding shipment. Such swine are, nevertheless, inspected, and must undergo quarantine for a period of thirty days.

MEXICAN CATTLE.

An entirely new departure was caused by the action of some of our western stockmen in introducing large numbers of young cattle from the Republic of Mexico. This trade, which began in 1902, is in my opinion, attended with no little danger, as the country from which the animals come lies south of the United States Texas fever quarantine line. The majority of the Mexican cattle which come to Canada originate in the state of Chihuahua, which so far as I am able to discover, is entirely free from tick-fever, although cattle in the adjoining states to the west, east, north and south are affected. No Mexican cattle have been allowed to enter Canada unless accompanied by a certificate of one of the United States inspectors, in addition to which they are carefully inspected before crossing into Canada. The great danger, however, lies in the possibility of infected cattle entering Chihuahua from the neighbouring states of Coahuila and Sonora. The Mexican government, which maintains practically no veterinary sanitary service, and is very careless about such matters, has now promised, however, to take steps to prevent the movement into Chihuahua of cattle from infected territory.

Should these promises not be fully carried out, I think it will be well to prohibit, in the near future, the importation to Canada of these Mexican cattle.

As in the case of animals brought from over seas, a permit is now necessary before importations from Mexico are admitted.

ANIMALS IN BOND.

The carriage of animals in bond across some parts of Canada, from one United States port to another has been placed under new restrictions, much more stringent than those formerly in force, especial attention being paid to the inspection of hogs, and to the cars containing them, as also to the manner in which they are dealt with during their passage through Canadian territory.

Before leaving this subject, I might mention the period of grave anxiety through which we passed during the prevalence of foot and mouth diseases in New England in 1902 and 1903. While the disease existed in New England, it was necessary to adopt the strongest possible precautions to prevent its introduction into Canada. A number of officers were appointed, with instructions to see that no animals originating in the quarantined states were permitted to cross the frontier. All returning stock cars were also thoroughly cleansed and disinfected on the American side.

EXPORT STOCK.

Some improvements have also been effected in the methods of dealing with stock intended for export. It was formerly the custom to inspect only those leaving Cana-

dian seaports, animals shipped from Boston, Portland and other points being allowed to proceed without examination. This has now been altered, the present regulations demanding a careful veterinary inspection by Canadian officers, of all such stock. The same ruling applies to sheep exported to the United States, this latter condition being rendered necessary by a somewhat serious outbreak of sheep scab which took place in Western Ontario during the winter of 1904-05, at the outset of which some diseased animals were unfortunately discovered among those shipped to Buffalo.

In many other minor ways the regulations have been rendered more stringent, with the result that, while there is yet considerable room for improvement, our export trade has been placed on a much safer and more satisfactory basis than formerly.

Now I have here notes on the various diseases with which we deal and if there is any particular disease that the committee would care to discuss this morning I think it would be better to let me read what I have written on it and then open the discussion.

By Mr. MacLaren :

Q. What has been done with regard to glanders? I find in my riding a lot of horses have been shot. The animals were brought in from some part of Western Canada. I would like to know the particulars with regard to that and what is being done ?

A. In that particular case or shall we take up the disease of the glanders ? There are a very large number of gentlemen here who, I have no doubt, are interested in glanders.

By Mr. Blain :

Q. Before you commence another subject may I ask : Is the order in council to which you referred as having been passed in March, 1904, very lengthy ?

A. It is.

Q. It is a long document ?

A. Oh, yes, very long.

Mr. Blain.—I was going to suggest, if the document was not too lengthy, that it should be attached to Dr. Rutherford's introductory remarks and printed.

By Mr. Wilson :

Q. Why should it not be anyway ? A page or two makes no difference ?

A. That could easily be done, although I would prefer to wait a little because it is my intention to have it amended again very shortly and if it is going to be widely distributed it would be better to have the amended edition of the order in council than the old one.

NUMBER AND DISPOSITION OF INSPECTORS.

By Mr. Lewis :

Q. How many outside inspectors have you ?

A. Besides those in this city ?

Q. Yes.

A. We have in the neighbourhood of a hundred.

Q. Where are they principally ?

A. They are all over the country, sir, from Halifax to the Yukon.

By Mr. Wilson :

Q. Will you be able to get that order in council revised in time to go out with your evidence ?

A. I am afraid not, Mr. Wilson, it is a very delicate business.

Hon. Mr. FISHER.—I am sure that the order in council referred to has been pretty widely distributed—that is the order in council which embodies the regulations. You see it is two years old and during that period it has been spread broadcast over the country. I would not like to say how many copies have been distributed but I think the number would amount to 12,000.

Dr. RUTHERFORD.—Yes.

Hon Mr. FISHER.—Probably from 15,000 to 20,000 copies have been sent all over the country, so I think the information which the order in council contains is pretty well known. To send it out again when it is likely to be changed in a month or two would be unwise.

Dr. RUTHERFORD.—If the committee would pardon a suggestion I would say that my correspondence would indicate that glanders is attracting more attention throughout the country than anything else and it might perhaps be as well to discuss that subject first.

Mr. FISHER.—You had better go on to speak of glanders.

GLANDERS IN HORSES.

Dr. RUTHERFORD.—I regret to report that this disease, one of the most dangerous and insidious maladies affecting any of the domestic animals, still exists to a very serious extent among horses in several widely different parts of the Dominion.

Previous to 1902 it was not dealt with by this department except in the Northwest Territories and in one or two isolated instances elsewhere, its control being left to the various provinces, several of which had legislation on the subject of a more or less effective character, while others gave it no attention whatever.

In the year named, however, on ascertaining that it was threatening to become epizootic in some parts of Ontario and Quebec, it was resolved to bring it under the operation of the Animal Contagious Diseases Act. This was accordingly done, an exception being made in the case of Manitoba, where the legislation was of such a nature as to permit of its being dealt with in a fairly effective manner by the provincial authorities, acting through their own inspectors.

By Dr. Sproule :

Q. Might I stop you one moment there. What distinction do you make between epizootic and epidemic ?

A. Demos means people and zoon means an animal. Epidemic would be a disease affecting people and epizootic a disease affecting animals.

Q. Epizootic affects people as well ?

A. That is perfectly true, but on the whole there is that general distinction. That is the difference.

COMMUNICABILITY OF THE DISEASE.

Since the discovery of mallein in 1890, a complete change, due to the information acquired through its use, has taken place in the views by modern veterinarians regarding glanders. It is now definitely known that many horses are affected while, for the time being, presenting no apparent symptoms, the disease being confined to the internal organs of which the lungs are most generally involved. This being so, it goes without saying, that the method formerly followed in dealing with glanders and still in vogue in some countries, namely, the slaughter of horses showing clinical symptoms only, is entirely inadequate. Experience has shown that where one or more clinical cases are found in a stable, it is almost a certainty that some of the animals which have been directly or indirectly in contact with them, are also affected. Of these many, sooner or later develop clinical symptons and so become active centres of in-

fection while there is good ground for the belief that the disease can be communicated by animals showing no external evidence of its existence.

CLINICAL SYMPTOMS OF GLANDERS.

By Mr. Ross (Yale and Cariboo):

Q. You speak of clinical symptoms. Is that when you can see symptoms of the disease?

A. Something which is evident. It follows, therefore, that any system which neglects these contact cases is defective and certain to result in spreading the disease, especially in view of the, perhaps, natural tendency shown by owners to dispose as soon as possible, of any animals left in their possession after the destruction of those visibly affected.

THE POLICY OF COMPENSATION.

Where no compensation is paid for horses slaughtered the inspector dealing with an outbreak of glanders finds himself in a very difficult position. Owners possessed of any intelligence seldom object to the slaughter of animals evidently diseased, but are naturally opposed to the killing of those which, while reacting to mallein, remain in good condition and are, so far as they can see, perfectly healthy. The tendency, therefore, is to refrain from testing contact horses on the theory that 'ignorance is bliss', for if tested and found to react they must be dealt with as diseased, while if presumed to be healthy they may be left free from restrictions. The results of such an ostrich-like policy are, however, bound to be eventually disastrous as may be seen from the following figures taken from the returns of the Board of Agriculture, which show the number of horses slaughtered for glanders in Great Britain under this system from 1898 to 1904, inclusive:—

1898	1,385
1899	1,472
1900	1,858
1901	2,370
1902	2,073
1903	2,499
1904	2,628

By Mr. Fisher:

Q. Would you indicate the system in Great Britain under which that results?

A. I cannot give you all the details.

Q. Generally?

A. I can give you the system generally. When an outbreak of glanders is discovered it is reported to the local authorities. A veterinary inspector, or in some cases a veterinary surgeon is communicated with and the local authorities have power to order the slaughter of horses affected, clinically affected with glanders, and these horses are slaughtered, a very small compensation being paid.

THE MALLEIN TEST.

Q. In determining whether the horses shall be slaughtered do they depend upon the ocular evidence or the mallein test?

A. They depend upon the ocular evidence or, where the clinical symptoms shown are not sufficiently clear, they apply the mallein test.

By Mr. Fisher:

Q. They do not apply the mallein test to animals that show no clinical symptoms?

A. Not officially, but as I will show later, they do it privately with most disastrous results.

The steady progress made by the disease under a similar policy, as evidenced by the experience of Manitoba and other infected districts, furnishes additional convincing proof of the folly of ignoring the constant and very real danger connected with the contact horse even when he is absolutely free from visible symptoms of glanders.

It is known that a proportion of such horses as react to mallein when first tested subsequently cease to show even that evidence of disease, having, to all appearance, overcome the infection. Beginning in 1902 it was decided, in default of compensation, to institute a system of carefully testing all contact horses and subsequently retesting such as reacted with a view to releasing those ceasing to react at the second or third test, and destroying those in which the reaction persisted.

In my reports for the years 1903 and 1904, may be seen a complete record of the work done in carrying out this policy of retesting which taxed the energies of our officers to the utmost. The results achieved, while showing a great improvement on the old methods, were in no degree commensurate with the risk and labour inseparable from such a policy, especially in the newer and more sparsely settled portions of the Dominion.

CEASED REACTORS.

After a trial extending, as above indicated, over two years, this system was found to be unworkable and far from satisfactory, inasmuch as it was shown to be practically impossible to keep reacting horses under such close observation as might offer comparative freedom from the risk of spreading infection. Among groups of reactors held for further tests, one or more are likely to develop clinical symptoms, thus becoming virulent centres of infection, not only endangering the other reactors with which they are in actual contact, they being in no way immune from reinfection, but through the various indirect channels with which horsemen are familiar, threatening the health of other animals not actually housed with them. More recently, frequent proofs have been furnished that many of even the so-called ceased reactors can be by no means looked upon as permanently cured. Several serious outbreaks can be traced directly to such horses, and making due allowance for the possibility of reinfection from outside sources, I may say that I am in possession of what I consider to be indisputable evidence in confirmation of the view that these animals are exceedingly dangerous. The risk attending their release is greatly increased by the tendency almost invariably shown by owners to dispose of them at the first available opportunity, when, falling into the hands of unsuspecting persons, they frequently introduce the disease among their new stable companions.

The policy of retesting reactors having thus been fairly tried and found wanting, while that of slaughtering clinical cases and ignoring contact horses had proved worse than useless, there remained the alternative of leaving the disease alone to spread as opportunity offered, or of applying the only practical and at the same time the only scientific remedy, namely, the destruction of all horses giving a typical mallein reaction whether presenting any external manifestation of glanders or not.

PAYMENT OF COMPENSATION.

Having decided on the latter course, the minister obtained from Parliament during the session of 1904, the necessary authority by an amendment to the Animal Contagious Diseases Act, and at the same time, secured the increased appropriation required for purposes of compensation. This was fixed by the Act at two-thirds of the

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actual value of the animal in the state of health, such value being limited in the case of ordinary horses to $150 and in the case of pure bred horses, $300.

On the principle that a horse showing clinical symptoms of glanders is not only absolutely valueless, but is a constant source of danger to all other horses as well as to its owner, his family, and any other human beings who may directly or indirectly be exposed to the contagion, it was at first decided to pay no compensation for cases of this class. The order in council of September 19, 1904, which brought the new policy into force, therefore, contained a provision to that effect. It was soon apparent, however that in order to secure early information as to the existence of glanders and to enable our inspectors to carry out the law without undue and dangerous friction, it would be necessary to amend the regulations so as to permit of the payment of compensation for all animals slaughtered in accordance with the Act. This was accordingly done, and on March 25, 1905, the following regulations were put in force:—

'DOMINION OF CANADA.

'REGULATIONS RELATING TO GLANDERS.

'By Order in Council dated 25th March, 1905, in virtue of "The Animal Contagious Diseases Act, 1903."

'1. No animal which is affected with or has been exposed to glanders shall be permitted to run at large or to come into contact with any animal which is not so affected.

'2. Any veterinary inspector may declare to be an infected place within the meaning of the "Animal Contagious Diseases Act, 1903," any steamship, or steam or other vessel, or any place or premises where the contagion of glanders is known or suspected to exist.

'3. No horse, mule or ass shall be removed out of an infected place without a license signed by an inspector.

'4. Veterinary inspectors are hereby authorized to inspect and to subject to the mallein test any horses, mules or asses affected with glanders or suspected of being so affected or which have been in contact with animals so affected or suspected of being so affected, or which have been in any way whatsoever exposed to the contagion or infection of the disease of glanders, and for the purpose of making such inspection or test to order any such animals to be collected, detained or isolated.

5. Horses, mules or asses affected with glanders, whether such animals show clinical symptoms of the disease, or react to the mallein test without showing such symptoms, shall, on an order signed by a duly appointed inspector of the Department of Agriculture, be forthwith slaughtered and the carcasses disposed of as in such order prescribed, compensation to be paid the owners of such animals if and when the Act so provides.

'In the event of the owner objecting to the slaughter of animals which re-act to mallein, but show no clinical symptoms of glanders, the inspector may order such animals to be kept in close quarantine and re-tested, such re-tests, however, in no case to exceed two in number and to be completed within four months of the first test, provided, however, that owners deciding to have their animals quarantined rather than slaughtered shall forfeit the right to compensation.

'7. Horses, mules or asses re-acting to the third test with mallein shall be forthwith slaughtered on an order signed by an inspector, and the carcasses disposed of as ordered.

'8. Inspectors are hereby authorized to permit owners of horses, mules or asses which give no reaction to the third test with mallein, and which have at no time shown any clinical symptoms of glanders, to retain and use such animals subject to the conditions contained in the license signed by the inspector.

'9. Before an order is made for the payment of compensation in any of the cases aforesaid, there must be produced to the Minister of Agriculture a satisfactory report, order for slaughter, certificate of valuation and slaughter, and certificate of cleansing and disinfection, all signed by an inspector.

'10. The certificate of an inspector to the effect that an animal has re-acted to the malletin test or has shown clinical symptoms of glanders, shall, for the purpose of the said Act and of this order be *prima facie* evidence in all courts of justice and elsewhere of the matter certified.

'11. Every yard, stable, outhouse or other place or premises, and every wagon, cart, carriage, car or other vehicle and every utensil or other thing affected with glanders shall be thoroughly cleansed and disinfected by and at the expense of the owner or occupier, in a manner satisfactory to a veterinary inspector.

'J. G. RUTHERFORD,
'*Veterinary Director General.*

'Department of Agriculture, Ottawa.'

Since the policy of compensation was adopted many outbreaks have been reported and dealt with by our inspectors. Some of these occurred in parts of the Dominion where, so far as the department was concerned, the existence of the disease had not previously been suspected.

PROPORTION AND MAXIMUM OF COMPENSATION PAID.

By Dr. Sproule:

Q. You have mentioned already, but I did not hear it distinctly, the maximum amount which is paid in compensation, one-third of its value, I think you said?

A. Two-thirds.

A. Yes, up to $150. The highest price is $150 in the case of an ordinary bred horse, but in the case of a pure bred horse it is double that figure.

By Mr. Martin (Wellington):

Q. Is it the inspector who fixes the price?

A. Yes, in every case.

By Mr. Ross:

Q. In case of a dispute as to price, has he got arbitrary powers?

A. It is absolutely necessary to have that power.

There is no doubt that, so long as a policy of slaughter without compensation was in force, the tendency of the owners, and even some veterinarians was to conceal the existence of glanders and to dispose of the suspected animals as quickly as possible.

On the other hand, it can be readily understood that the adoption of a policy of paying for slaughtered animals has encouraged owners and veterinarians to report much more freely the existence of the disease. A serious outbreak in the Saguenay district has never been reported, although the disease had been raging for a number of years, while no one ever suspected the existence of glanders to any serious extent in British Columbia, although, as our figures show, a considerable number of diseased horses have been destroyed in that province during the year just past.

Again the true state of affairs in Manitoba, as brought to light by our inspectors in that province since the work was taken over by this department from the provincial authorities in February, 1905, came as a very great surprise. For twenty years the Diseases of Animals Act of Manitoba was indubitably the best in the Dominion, and the work of dealing with glanders was supposed to have been carried on in an intelligent and systematic manner. It was not, however, the policy of the

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provincial authorities to destroy reactors, clinical cases only being killed, while in some cases contact horses were tested and kept under supervision, and in others they were allowed to go without further attempt at control.

The results of pursuing such a policy are very evident as will be seen by a reference to the figures accompanying this evidence.

So far as it is possible to judge at this comparatively early date after its adoption, the new policy is likely to prove successful in securing the object sought, namely, the complete eradication of glanders. In those districts where the disease has been prevalent and where people have for many years been heavy losers from its effects the new regulations are giving great satisfaction, and intelligent horse owners freely express their approval of the change.

In other parts of the country where glanders has but recently appeared, it is sometimes claimed that there is no crying necessity for such stringent measures. The argument is advanced that the disease has existed in Canada and in other countries for many years without becoming epizootic or causing a loss of horse flesh as great as that resulting from the present operation of our inspectors. As can easily be shown, however, this contention is not well founded. The statistics of European countries, where these are reliable, show conclusively that glanders, under modern conditions, when dealt with by the effective methods generally in use, is exceedingly difficult to control. The figures already quoted from the returns of the Board of Agriculture of Great Britain indicate the futility of half measures.

By Mr. Martin (Wellington):

Q. Have you the statistics for all Canada ?

A. Yes, I have them here, that is during the last four years.

Q. For each province ?

A. As I said at the beginning the Dominion did not deal with this matter until 1902 except in the Northwest Territories.

Q. Have you got the statistics since that time for each province ?

A. Yes, I have those figures. As far as our work is concerned you will understand——

Q. In the first part of your address you claimed that the disease existed in some parts of the province of Ontario. Can you state what parts ?

A. Yes, I can give you that in a moment.

A strong effort is now being made to induce the British authorities to introduce the policy now followed in Canada as is evidenced by the following extract from a review of the report of the Board of Agriculture which appeared in the London *Lancet* on July 5, 1905 :—

'Glanders is admittedly on the increase, and it is time that some radical measures were taken to control the disease. In 1894 there were only 502 outbreaks reported, but in 1904 these had increased to 1,539, and 2,658 horses were killed as glandered. More power ought certainly to be given to the veterinary inspectors to test the in-contact horses with mallein, as by this agent an almost infallible diagnosis can be made within 24, or at most 48 hours. The expense, although great the first year, would not be excessive if allowed to spread over a period of years; and where a preventable disease, which also causes the death of numbers of human beings each year, is concerned, the cost ought certainly not to be considered too seriously as the reason why it should not be taken thoroughly in hand.'

If it is possible for glanders to extend its ravages to such an extent in a country like England, it is not difficult to understand why I have deemed it necessary to advise the adoption of the policy now in operation in Canada where the geographical and economic conditions are so much less favourable to the systematic supervision of suspected cases.

In localities where the nature of the disease has not been recognized, and where no intelligent efforts have been directed towards its control, the results have invariably been disastrous.

As an instance of this, I would again refer to the experience of the Saguenay Lumber Company, the secretary of which reports a loss by death in less than four years of upwards of fifty head of valuable horses, all of which, according to him, died from glanders. Not only did these horses die, but the whole district in which they were kept has become infected to such an extent as to render it almost an impossibility to stamp out the disease without destroying an overwhelming majority of the horses therein.

By Mr. Ross (Yale-Cariboo):

Q. Where is that, doctor ?

A. In the Saguenay county.

Q. Near Lake St. John ?

A. Southeast of Lake St. John, down along the Saguenay river and along the coast from Chicoutimi.

This is the point that Mr. Maclaren was interested in.

THE SPREAD OF GLANDERS.

There are several points in connection with the spread of glanders which must be considered in dealing with the statements made by opponents of our present policy. One of these, and perhaps the most important, is the great change which has taken place of recent years in regard to the transportation of horses from place to place. Granting that in communities, and especially farming communities where new horses, with the exception perhaps of valuable breeding stock, are but seldom introduced, immunity from glanders may be long enjoyed, I would remind you that the violent fluctuations in the value of horse flesh which have characterized the last twelve years have led to the movement of large numbers of these animals from various parts of this continent to other places, and that, by this means, the disease has obtained a foothold in many districts where it was formerly unknown.

I am satisfied that never before have conditions been so favourable for the spread of glanders as they now are when it is possible to transport horses for thousands of miles with comparative ease and at a small fraction of the cost formerly necessary.

Among the most dangerous and persistent agents in the dissemination of glanders and other diseases are the range horses, which during the last ten years have been shipped from the western states in large numbers to supply the temporary shortages arising from the unfortunate cessation of breeding which resulted from a depression of prices in the early nineties.

The mortality from the disease on the range itself is not very great, the conditions being favourable to its maintaining a latent form, but it soon develops when the infected animals are broken, stabled and put to work, as has been demonstrated again and again; a chain of outbreaks having frequently followed exactly the route taken by one of the numerous itinerant bands of broncos imported for the purpose of being peddled to farmers.

While inspection at the boundary is enforced, it is, in many cases, impossible to detect the existence of glanders without the aid of mallein. Although involving considerable inconvenience to importers it would almost appear necessary to make provision for the testing of all horses introduced from the other side.

In many states of the union no serious attempt is made by the authorities to deal in an effective way with outbreaks of glanders, and as a result a good deal of private testing is carried on, the reactors being subsequently disposed of as soon as possible. As such horses are sold at a sacrifice, they are, as a rule, quickly picked up, and there is no doubt that some of them are brought into Canada either by persons ignorant as to their true condition, or unscrupulous enough to run the risk of having them pass inspection at the boundary before the disease has developed sufficiently to admit of its existence being detected by ordinary method.

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The dissemination of glanders in modern times is, beyond question, largely assisted through the agency of private mallein tests conducted by unscrupulous horse owners and veterinarians.

Leading authorities in London, the great hot-bed of glanders in Britain, attribute largely to this cause the rapid spread of the disease and the occurrence of outbreaks in the most unexpected places. The practice was rapidly coming into vogue in Canada, and is yet, I fear, practised to some extent although reputable veterinarians have ceased to indulge in private testing since the Animal Contagious Diseases Act was amended in 1903, requiring them to report all cases of contagious disease coming under their observation.

The promptitude now shown by the department in sending inspectors to investigate all reported outbreaks has also done much to prevent private testing and attempts at the treatment of suspicious cases.

While realizing to the full the serious nature of our present operations, and the large expenditures necessary to carry them on, I cannot conscientiously, as a responsible official, recommend any change in the present system. To revert to the former conditions of affairs would simply be to court disaster. It is true that the expenditure this year has been very large, exceeding altogether, for reasons explained above, the sum which I had considered would be sufficient, but I feel certain that the amount of money necessary will become less yearly and that we will finally, if the work is honestly and faithfully carried out, be able to congratulate ourselves and the country on the practical eradication of what is now one of the most serious causes of loss to the Canadian owner of horse flesh.

COMPARISON OF EXPENDITURES.

Compared with the amounts spent by other countries in stamping out diseases of animals our expenditures is very moderate. Great Britain paid in compensation for cattle slaughtered for rinderpest between 1865 and 1868 over $5,500,000, while the cost of eradicating pleuro-pneumonia involved an outlay in compensation alone of nearly two million dollars. To stamp out the recent outbreak of foot and mouth disease in New England cost the United States government $1,500,000, and this expenditure, though large, was doubtless true economy in view of the recent statement of the president of the British Board of Agriculture that that disease had, since 1890, cost the farmers of Great Britain over $12,000,000.

In this connection I would refer you to the ratio of decrease in the amounts expended for compensation in connection with hog cholera, since the adoption of the energetic policy which has been pursued by the department since 1902:—

Paid in fiscal year,	1901-02	$15,962 97
" "	1902-03	36,029 75
" "	1903-04	21,352 35
" "	1904-05	7,042 73
1st half of fiscal year	1905-06	839 34

These results have been achieved in spite of many complaints made by owners and dealers in hogs, who considered our policy unnecessarily severe, while many people also thought that the expenditure incurred was unjustifiable. The results, however, are such as to show that we are right, and I am confident that similar benefit will follow the consistent carrying out of the present regulations *re* glanders. No great victory of any kind has ever been won by following a half-hearted policy. This is especially true of campaigns against contagious disease, whether of man or animals, and has already been demonstrated times without number.

By Mr. Maclaren:

Q. Tell us where those horses that were shipped into my riding and caused so much trouble, came from?

A. They came from western Canada latterly, although in my opinion the disease was originally brought into that particular district from which these horses came by animals from Montana.

Q. Were they broncos?

A. They are what you call range horses. They are not exactly broncos; many of them are Percheron grades.

Q. How many horses were diseased?

A. In that particular district?

Q. Yes.

A. Forty head.

Q. In my riding?

A. I think so.

MEANS OF INFECTION.

By Mr. Lewis:

Q. How does the infection take place from horses?

A. Well, it will take place in a great many different ways. It will take place of course by inoculation, it will take place by ingestion, but I think the most frequent mode of infection is probably by inhalation.

Q. Would there be any danger in a public drinking fountain for horses?

A. Yes, there is, although I do not think that the danger in a public drinking fountain where the water is always running is as great as is generally supposed. Still, there is no question about there being danger there.

By Mr. Maclaren:

Q. Have you still got the county of Perth under observation?

A. We are keeping everything under pretty close observation. We have killed every animal that reacted, I think, and as far as I am aware that outbreak is under absolute control.

Q. How is it in other parts of western Ontario?

A. We have managed to control every outbreak in western Ontario.

By Mr. Herron:

Q. Is there any danger among horses grazing upon the prairie?

A. You know as a practical man that it would be fortuitous. If one animal with a nasal discharge happens to be grazing and rubs its nose against something and another horse happens to come along and gets in contact with the same grass or the same post, there certainly would be danger.

By Dr. Black:

Q. Are there sporadic cases, or does it suddenly affect other horses?

A. No, there is no such thing as spontaneous origination of the disease.

Q. Do you often have sporadic cases that are epidemic?

A. Quite frequently we deal with isolated cases.

By Mr. Maclaren:

Q. Where horses are shipped from one part of Canada to other counties, is there any inspection to ascertain whether they have glanders or not before they are allowed to be shipped?

A. Do you mean from one section of the country to the other?

Q. Yes.

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A. That is one of the difficulties that we have met with. You all know the country geographically. Take that district in Southern Alberta, Mr. Maclean, where those horses that went to your district originated. Take that district, roughly speaking below the printing of the word 'Alberta,' on the map, and extending as far east as the fourth meridian on the east, the international boundary on the south, and the Rocky mountains on the west. That is a district I would rather like to quarantine for various reasons, not only on account of glanders but on account of maladie du coit. If that district were quarantined and the shipment of horses forbidden, the market in northern Alberta, and in the provinces of Saskatchewan, Manitoba and British Columbia, which the owners of horses in Southern Alberta at present utilize, would be forbidden to them while at the same time it would remain open to the people in Montana, Oregon, Washington, Idaho, Nebraska, and North Dakota, where conditions as regards disease are certainly no better, and in my opinion are somewhat worse than they are in our own territory. So that it would be a very difficult matter to quarantine—a matter requiring very careful consideration—that district in Southern Alberta and leave the market open to the United States people.

IMPORTATION OF LOW GRADE HORSES.

By Mr. Ross (Yale-Cariboo):

Q. You referred to the matter of the importation of what we call cayuses ?

A. I do not think I mentioned them.

Q. Well bronchos as you call them, it is about the same thing. As I understand it at the present time those horses cannot come into Canada except at a valuation of $50 ?

A. Yes.

Q. And there is 20 per cent duty, making $10 they have to pay the Customs?

A. Yes.

Q. Would it be possible for you to adopt such regulations as would stop the importation of such horses that are not worth $50, but have a value of that amount placed on them by the customs people. There is a very considerable number of such horses coming in and I know the horsemen of British Columbia would like to keep them out altogether ?

A. The horsemen would ?

Q. Yes. I would like you to refer to that at some point.

A. Of course there is this about it, Mr. Ross. It is not only the cheap horse, the poor looking horse, which is capable of introducing glanders. Any horse is capable of introducing the disease and it is impossible by ordinary clinical examination, or physicial examination of a horse, for a veterinarian, no matter how skilful he may be, to tell whether it is affected with glanders or not.

Q. I understand that ; but those bronchos could be quarantined when they come over the boundary line at the expense of the owners of the horses ?

A. Yes, we do that as much as we can. It is a very difficult matter to hold a band of horses of that kind, sometimes five or six hundred, and even more coming in together. We have built corrals as you know at a great many points and we hold those horses.

Q. At the expense of the owner ?

A. We build the corrals at the expense of the department.

Q. But the expense of keeping the horses ?

A. They are held at the expense of the owners, but the supply of fodder for a number of horses of that kind is a very serious item at those boundary points.

Q. But, doctor, you are no doubt aware that fellows go to the ranges and pick up horses for a dollar and a dollar and a quarter each. They get a lot of scrub horses and they bring them to the boundary line, where they pay $10 duty and thus have $10 or

$12 horses when they get to the other side. I think, as you mention in your report, that those horses are liable to spread the glanders and that they might very properly be quarantined in all cases ?

A. Well, here are the regulations in regard to the importation of horses, and I shall be very glad to get any suggestion, and I am sure the minister also will be, as to how to regulate the importation of them :

'Horses, mules and asses which have originated in, or passed through, the republic of Mexico, or that portion of the United States lying west of the Mississippi river, and of the eastern boundary of the state of Minnesota, shall be inspected, and if gentle and thoroughly broken to harness or saddle, may be admitted at any quarantine or inspection port, as follows :—(Then follows a list of ports and the regulations go on to say) :

'Inspectors shall, however, in any case have the power to detain, isolate, submit to the mallein test, dip, or otherwise treat such horses, mules, and asses as they may have reason to believe or suspect are affected with, or have been exposed to, infectious or contagious disease.'

Q. The point I want to make is this : The horses that are brought wholesale from the ranges have not been bred on farms. When they reach the Customs port of entry they are of a less value than $50, they are $10 and $12 horses and care should be taken to prevent their admission ?

A. I am just coming to those horses now : 'Branded, or range western horses, other than those which are gentle and thoroughly broken to harness or saddle.' Now the idea of putting that in was that in the case of a horse which is thoroughly broken to harness or saddle, our inspector can walk up, take hold of and make a close physical examination of him which of course, as you know, cannot be done with a bronco. Now, horses other than those which are gentle and thoroughly broken to harness or saddle may be admitted only at the following ports : Sarnia, Ont.; Emerson, Man.; North Portal, Wood Mountain, Pendant d'Oreille, Coutts and Twin Lakes, Northwest Territories ; Gateway, Rossland, Nelson, Grand Forks, Vancouver and Victoria, B.C., subject to the following regulations : 'Such horses must be accompanied by a certificate signed by a veterinarian of the United States Bureau of Animal Industry or by a state veterinarian stating that they are free from infectious and contagious disease, and that no infectious or contagious disease of horses has existed in the district whence they have come, for the period of six months immediately preceding the date of their removal therefrom.

'Owners or persons in charge shall afford to inspectors every facility and assistance for inspecting and otherwise dealing with such horses and shall secure and handle them as directed by the inspectors.

'Such horses shall, in all cases, be subject to detention for such period as the inspectors may deem necessary to determine whether they are free from infectious and contagious disease, and shall be isolated, submitted to the mallein test, dipped or otherwise treated if the inspector so orders.'

By Mr. Ross (Yale-Cariboo):

Q. Well, doctor, do you think that these regulations are being rigidly enforced ?

A. They are optional, you see.

Q. Well, why not rigidly enforce them against range horses ?

A. Those that are not optional are being rigidly enforced. That is to say that no horse can come in there unaccompanied by a certificate, no unbroken range horse can come in at any of those points.

Q. Those are not optional ?

A. Those are not optional.

Q. Do you get certificates ?

A. We get certificates.

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By Mr. Maclaren:

Q. Do you not think it would be better if more publicity were given to this matter through the press? A great many people do not know the danger involved. If it was written up to the press and the public warned regarding this particular disease it would be a good thing to do?

A. It is just a matter of opinion. If you could see, as I see, the comments that are made by papers in other countries whenever the slightest little paragraph gets out as to disease among Canadian animals, you would appreciate my reason for telling my inspectors they must not have newspaper interviews.

Q. That may be, but what about the man who has bought one of these foreign animals and had to shoot the whole of his horses and only gets two-thirds of the value?

A. It is a matter of opinion, you know.

By Mr. Lake:

Q. Have you traced any cases to the United States?

A. Yes, a large number.

By Mr. Wright (Muskoka):

Q. Would it not be better to forbid the importation of these hacks that are brought in and carried all through the country? I happened to be out at the coast last fall and saw a lot of horses being brought in and I am pretty safe in saying the whole lot would not be worth $25. They were in charge of a gypsy and were a lot of worn out hacks so poor that they could hardly walk.

No answer.

By Mr. Maclaren:

Q. I think this matter should get more publicity and it would make people more careful. I think there are comparatively few who know the danger?

A. I might explain, Mr. Maclaren, that my report is a public document and is published every year.

Mr. MACLAREN.—I know, but every farmer in the country does not see that.

By Dr. Sproule:

Q. If I understand the law it is that a horse of less value than $50 cannot be imported.

A. It is a customs regulation.

Q. Is it possible or probable that people would take horses not worth more than $20, and in order to get them in this country would pay $10 duty and raise the value to $50.

A. That is often done.

Hon. Mr. FISHER.—If I may say so, I think Mr. Ross is a little wrong. The customs law as passed last session, or the session before, absolutely forbids the importation of horses under a value of $50, and the customs appraiser would have a perfect right to appraise an animal. They would have a perfect right to say 'this animal is less than $50 value and cannot come in.'

Mr. Ross.—They do not exercise the right.

Hon. Mr. FISHER.—I do not think they do exercise the right, but still it is the law and they might do so. I tell our veterinary officers not to deal with that matter at all; it rests with the customs officers. Our officers therefore simply deal with a diseased animal without any regard to the customs laws.

By Dr. Barr:

Q. Are those horses inspected before they are allowed to come in?
A. Yes.

POSSIBILITY OF CURING GLANDERS.

By Mr. Lewis:

Q. Does this disease attack a certain class of horses especially?
A. No.
Q. Can the disease be cured?
A. Well, that is a question which I cannot answer definitely. Since the discovery of mallein in 1890 by the original investigator that question has engaged the attention of the leading comparative pathologists of the world. It was held by a number especially of the French school who stand very high as veterinarians, that repeated injections of mallein in cases not too far advanced had a definite curative effect. This was combated by others and the discussion went on for a good many years. It was finally taken up by Sir John McFadyean as the head of the Royal Veterinary College in London and the British Board of Agriculture conducted a series of experiments along these lines. The consensus of opinion was that a limited number of horses which do not react above a certain figure in the first test of mallein, and which on being subsequently tested had nevertheless ceased to react altogether, were really cured, or to put it perhaps more correctly, they recovered. Whether the recovery was due to the mallein or whether it was spontaneous, the general impression was that these horses receovered. That view prevailed, although there was always a conservative element among veterinarians who were a little bit afraid. They had their doubts certainly, and as time went on those doubts have increased. Our experience, especially in 1902, 1903, 1904 and 1905, in Canada, has completely converted me to the opposite view. I am satisfied that a horse even where there is a cessation of reaction is by no means certainly cured, and that it is not a safe animal to have at all.

Q. It might be interesting to the community at this point to learn what is the meaning of mallein, and of reaction, and of clinical symptoms?

Mr. MACLAREN. I think when an outbreak occurs the facts should be given to the public.

Dr. RUTHERFORD. That is a question of policy, Mr. Maclaren, with which I have nothing whatever to do. It is not for me to say whether I shall go out on the house tops and announce every time there is an outbreak of hog cholera or glanders. I am a public servant, but if this committee decides, without any reference to me or consultation whatever with the minister, that it is in the public interest to advertise these matters if I am directed so to do I will certainly comply. But that has nothing to do with my work.

Mr. MACLAREN.—I was going to ask the Minister.

Hon. Mr. FISHER.—There was a discussion a little while ago over the publication of the evidence of this committee, and I think we had better await the outcome of that. This point does not relate at all to Dr. Rutherford's evidence, and I think we had better proceed with that.

DEFINITION OF 'MALLEIN,' 'REACTION' AND 'CLINICAL SYMPTOMS.'

By Mr. Lewis:

Q. I would like to have an explanation of the word 'mallein,' of 'reaction,' and of what 'clinical symptoms' are so that any farmer can understand it.
A. Mallein is the glycerinized extract of cultures of the bacillus mallei. During its preparation it is sterilized and contains no living germs, and, therefore it cannot communicate disease to a healthy animal.

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The injection of an appropriate dose of mallein under the skin of an animal affected with glanders or farcy is followed by double reaction, either form of which may be diagnostic, namely—a rise in temperature or a painful œdematous swelling at the point of inoculation, gradually increasing in size for a period of 24 hours or longer. Either form of reaction is usually accompanied by more or less debility. Animals that are not affected with glanders or farcy suffer no inconvenience and present no reaction. In advanced cases where the disease has permeated the whole system the reaction may be very slight or altogether absent. It must be borne in mind that in cases where there is abnormally high temperature and necessity prevents delay in applying the test, a lowering of the temperature should be considered as suspicious, and the animals held under observation for a re-test under normal conditions.

To obtain the normal temperature of the animals we tested, at least two temperatures, three hours apart, should be taken on the day the mallein is to be injected. The requisite dose should be injected under the skin with a hypodermic syringe that has been previously sterilized. The most convenient point of injection is the side of the neck, the local reaction being more prominent in this region. The skin at the point of injection should be saturated with an antiseptic solution before the injection is made. The most convenient agents for the sterilization of the syringe and the saturation of the skin are, carbolic acid or creolin in solution. The solution is made by the addition of one part of carbolic acid or of creolin to twenty parts of water. The hypodermic needle should be dipped in the antiseptic solution after each injection before proceeding to again fill the syringe or inject another animal. After injection five temperatures should be taken at intervals of three hours, commencing with the eighth hour. The mallein solution as sent out is ready for use. Each bottle contains one dose of mallein solution, two and one-half cubic centimetres, or about 40 minims. The date of each bottle indicates the limit of time during which the contents should be considered reliable for diagnostic purposes.

By Mr. Ross :

Q. Mallein then is the manufactured article ?

A. Yes.

Q. They do not get it from the diseased horse ?

A. Oh, no, not at all, although they obtain the bacilli originally from the diseased horse.

By Mr. Sproule :

Q. Would the farmers not understand it better if it were said to be the same as vaccine virus which is used for small-pox ?

A. It is something the same but not exactly the same. That would not be an answer. It is a preparation without the bacillus itself. There is no possibility of mallein, if properly manufactured, being the means of conveying the bacillus into the system of the horse.

By Mr. Ross :

Q. The horse could not get glanders from injecting the mallein ?

A. No, not at all, it is impossible, from the nature of its preparation. The mallein is injected under the skin of the horse.

By an Honourable Member :

Q. What part of the horse ?

A. Any part of the horse, but it is generally done on the side of the neck, as being most convenient, and the skin there being thin. That injection is usually made in the evening. As I have told you, before the injection several preliminary temperatures are taken so as to arrive at the normal temperature of the animal.

By Mr. Ross :

Q. Is that done with an ordinary thermometer ?

A. Yes. As nearly as possible the normal temperature is taken and this injection is made in the evening. The next morning, about eight hours afterwards, the veterinarian begins to take the temperature. If the horse is affected with glanders there will be a rise. The temperature will go up, and about noon or in the afternoon of the following day it may register from a normal of 100 or 101 up to 103, 104, 105 and in some cases perhaps 106. At the same time in the great majority of horses there is a swelling at the point of inoculation.

By Mr. Lewis :

Q. That is the way the horse is affected ?

A. That is the way the horse is affected; there is a stiffening also, sometimes a distinct lameness on that side showing the mallein's effect. There is general uneasiness, malaise, depression. The horse is dejected and does not want to eat. He is very unhappy generally and this condition continues for some time. The swelling in a case of glanders at the point of inoculation will generally be larger on the second day than it was on the first. In any horse that is injected with mallein even if quite healthy, there will be a small swelling at the point of inoculation. In most cases it will not be over a couple of inches in diameter. It is comparatively free from painful sensation but the local reaction which I have described combined with the symptoms, form almost positive evidence of the existence of glanders in some form or other in the system of that horse.

Q. Is the reaction not greater in a high-blooded horse ?

A. It does not seem to make any difference.

Q. You did not give the clinical symptoms of a horse afflicted with glanders ?

A. Of course the clinical symptoms of a horse affected with glanders were formerly looked upon, or rather the absence of the clinical symptoms was formerly looked upon, as evidence that the horse was not diseased. You understand that that day has passed away and that a great many cases of glanders show no external evidence whatever. As a rule the first clinical symptom shown is a tumefaction of the sub-maxillary lymphatic gland.

By Mr. Ross :

Q. Hear, hear.

A. I had forgotten if you will excuse me, gentlemen.

By Mr. Sproule :

I suggested to the doctor some time ago to avoid technical names.

A. There is a small gland which is situated on the inside of the lower jaw bone on each side which is known by the name I mentioned. That gland which is always easily detected by any horseman, because enlarged and hard and feels very often as if it were attached to the bone itself instead of being movable and freed. If close observation is made it will invariably be found to be accompanied by a slight nasal discharge. It may be so slight as not to attact the attention of the owner or the groom or anybody else. It is almost invariably the case that with an abnormal enlargement of that gland there is a little nasal discharge. It may only be occasional. but it is there, and a close examination of the membranes of the nose would show a slight tumefaction, a slight reddening and irritation, but hardly an inflammation. Now that can go on for a long, long time, it may go on for years, and that horse although he is not showing any other symptoms, is really infective.

By Dr. Black :

Q. Is he capable of disseminating disease ?

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A. He is capable of disseminating the disease. As the disease advances this discharge becomes more pronounced. A little discharge from the eye will also be noticed. In an acute case of glanders the animal becomes rapidly emaciated, and the discharge becomes profuse from both nostrils. Ulceration takes place inside the nose and the membranes of the nose—ulceration so intense that I have seen inside of three days in an animal apparently healthy an aperture in the membrane between the two nostrils, two inches in diameter.

By Mr. Lake:

Q. Three days from what?

A. Three days from the time that animal appeared in perfect health, the disease advanced so rapidly that there was an aperture between the nostrils of the size I have stated?

By Dr. Black:

Q. That is in an acute case?

A. Yes. In such a case there is a loss of appetite, a swelling of the legs, and a general bad condition of health followed, of course, very rapidly by death. Some of these cases break out in repulsive and loathsome sores all over the body. I do not think there is any more miserable object than one of these acute cases.

By Mr. Fisher:

Q. Those are extreme cases?

A. Those are extreme cases, but I have seen numbers of them.

By Mr. Lewis:

Q. Would that discharge from the horse's nostril if dried and carried through the air cause disease?

A. Yes.

By Dr. Black:

Q. Will a chronic case develop into an acute case?

A. Oh, yes.

By Mr. Wright (Muskoka):

Q. How can a farmer distinguish between an ordinary distemper, in the initial stages, and glanders?

A. It is very difficult in some cases. It would even puzzle a skilful veterinarian without the use of mallein in some cases.

By Mr. Lake:

Q. The swelling of the gland to which you referred occurs in several diseases?

A. Wherever there is any irritation in the nasal chambers, or membranes of the nasal passages, you may have that swelling.

Q. Is mallein considered prophylactic at all, does it secure immunity from the disease?

A. I mentioned that in my evidence. There is absolutely no immunity conferred by the use of mallein.

By Mr. Ross:

Q. With reference to this mallein, there can be no reaction excepting from glanders with the mallein test? What I mean to say is, it affects only the disease of glanders?

A. That is the only disease.

Q. There would not be the same reaction from tuberculosis, or any other disease excepting glanders?

A. No.

By Dr. Black:

Q. Can an animal have such pronounced clinical symptoms of glanders that the system will not respond to the mallein test?

A. That is a very good question. Take some cases of glanders where the disease is acute, the temperature is very often so high that it would be hopeless to look for a rise in temperature from the injection of mallein. In such cases we depend to a considerable extent upon the local reaction which we always get even in the most advanced cases.

By Mr. Ross:

Q. What do you mean by local reaction?

A. I have already described it, the swelling at the point of inoculation.

By Dr. McLennan:

Q. In such a case as that where the clinical symptoms are so evident, it would not be so necessary to inject mallein?

A. We sometimes get acute cases where the external appearances are such as to make it very difficult to diagnose the nature of the trouble. It is possible to have an acute case of glanders without the presentation of definite symptoms. You may find a temperature of 103, or over, and in such cases when mallein is used the temperature is quite likely to go down instead of going up, and we regard such an occurrence as a good indication of the presence of the disease, especially when the drop is accompanied by a well marked local reaction.

By Mr. Ross (Yale-Cariboo):

Q. You use mallein for testing for tuberculosis, do you not?

A. No, we use tuberculin.

Q. The reason I am asking is that many farmers consider it is the same thing that you are treating for the two diseases, and that when you get a rise in temperature it may not be glanders at all?

A. There is no connection.

Q. Is mallein a commercial article that can be purchased at drug store?

A. Through a drug store.

By Mr. Lake:

Q. Is it a matter of opinion at all on the part of the veterinarian who is performing the operation as to the extent of the rise in temperature?

A. It is not a matter of opinion.

Q. That is to say, the temperature is bound to rise so many degrees in order to justify his conclusion?

A. Yes, under ordinary circumstances.

PRIVATE USE OF MALLEIN.

By Mr. Ross:

Q. There is a good deal of prejudice against mallein in my constituency. A number of my people are complaining that others have been in the habit of buying mallein and testing their horses. The animals did not react when the inspector came around and so they escaped, while the honest people who did not do that had their horses condemned. Now, is there no way of placing all on the same footing so that one set of

men may not escape from the regulations of the department while the other folks have their horses sacrificed?

A. Well, I would be quite willing to adopt any workable suggestion that may be made to me as to how to overcome natural depravity.

By Mr. Fisher:

Q. Is mallein a common thing for druggists to keep?

A. They can all get it when they order it.

METHOD OF APPLYING MALLEIN TEST.

By Mr. Talbot:

Q. What is the reason for making the test in the evening rather than in the morning?

A. It is to allow the inspector and the horses to get some sleep. A period of eight or ten hours elapses between the injection and the time when its effects begin to be apparent and that time may as well be spent in rest because there is nothing to do. They begin taking the temperature in the morning and before the evening comes the test has told them whether the horse is diseased or not. It is largely a matter of convenience. There is another reason for it which I might mention and that is that the horse, like other animals, has his highest normal temperature in the evening.

By Mr. Lake:

Q. The temperature rises in almost every case to a certain extent with inoculation?

A. Yes.

Q. Then sometimes it rises to a point at which the veterinarian is undecided as to whether he can make certain of the presence of the disease or not. Have you fixed the number of degrees of rise which is necessary to prove the presence of the disease?

A. The degrees Fahrenheit are about three and a half. That is the limit beyond which we do not care to go. But all our inspectors have a certain latitude allowed to them. There may be some purely local reason for that rise of temperature or for its absence of which the inspector may be aware, but which I, sitting in my office and looking over his charts and reports would not know anything about, consequently the inspector has his directions whenever there is a rise of temperature above that particular point to make a note on the chart unless the animal is destroyed. I think this is a very important and practical question. The inspector has to use his own individual judgment in every case. The rule I lay down is this: That given certain conditions and certain results of the mallein test, unless the law is carried out and the animal is slaughtered, the inspector must explain why, which I think is only right and proper.

RETESTS.

The inspectors have a power which is not mentioned in these regulations, of quarantining for further tests, any horses which they may see fit to reserve for that purpose, without putting the owner under the penalty of losing the compensation which he must lose if he insists of his own volition in holding for further tests, horses which the inspector would otherwise condemn.

By Mr. Ross:

Q. If the owner pays for the expense of the quarantine why not allow him com-compensation?

A. There is no country in the world to-day which is paying for diseased horses at the same generous rate that this country is paying. And the reason why this coun-

try is paying so much, as was explained to parliament when this Bill was before it, is in order to stamp out the disease, and have done with it. And if an owner insists against all our knowledge and against all our regulations, upon keeping alive a centre of this disease in his stable——

Q. In quarantine?

A. In quarantine or out of quarantine—it is impossible to hold animals under such restrictions, as I have explained in this country as to keep other peoples' horses safe—and if that man insists upon keeping that infective centre in his stable and causes to this department a payment of, possibly, $20,000 which it would not incur if his horses were killed, I think it is only right and proper he should pay for the privilege by losing his compensation.

By Mr. Blain:

Q. Why have the privilege of keeping his horses at all?

A. Because you might have a horse worth $10,000, and the utmost we could give in compensation would be $200. Or a poor settler may have three or four horses which may be all he has to put in his crop or to take it off, and it would be pretty severe to absolutely insist upon killing those horses if it was really worth far more to him to get the use of them for a few weeks.

By Mr. Fisher:

Q. But he is only allowed to keep them under strict quarantine, he has to show that he can keep them isolated. If he does not show that he will not be allowed to keep them?

A. Yes.

By Mr. Blain:

Q. Are there many such cases?

A. No, there are comparatively few. Every now and then there is one, especially in districts like Mr. Ross's, where the people have never been experienced in what glanders really means to them.

Mr. Wright (Muskoka):

Q. Is it not possible that a horse might be so weakened by overwork, or some complaint that affected its health, that it would be unable to resist the effects of mallein, and the result would be a rise of temperature, apart altogether from the question of having glanders?

A. No, our experience is that there is very little danger. The percentage of what may be called doubtful reactions is very small. There is this to be said, however: You have, let us say, a hundred horses in any stable, and you start in and take their temperatures six or eight times in 24 hours without any reference whatever to mallein. There is perhaps no mallein within a hundred miles. It is nevertheless quite within the bounds of possibility that the temperature of one of those horses may, through some individual condition or extraneous circumstance suddenly rise. Now that horse might, if there had been an injection of mallein the previous night, be wrongly condemned as suffering from glanders. That is really about the only risk we find in the practical use of mallein.

By Mr. Ross (Yale-Cariboo):

Q. But the temperature did not rise because you injected mallein?

A. If there was no mallein within a hundred miles the horse's temperature might go up.

APPENDIX No. 2

DISINFECTION OF STABLES.

By Dr. Black :

Q. Can you successfully purify a stable without burning it, and how ?

A. Yes, that can be easily done. There is a very interesting thing involved in that question. When I was a young man, that is a good while ago, veterinary surgeons believed that a stable would keep alive the germs of glanders for years, and years, and years. We have found out since that there is nothing in it—that about four months is the extreme length of time that the bacillus will live outside of the animal body under the most favourable conditions. Now the explanation of the prevalance of that old belief is the existence of those latent cases of disease which have been explained to us by the use of mallein. I can show you in Ottawa, any of you who care to see it, a horse that has had glanders for three years, we know that for a fact, and yet it is as fine a looking horse as there is in the district.

By Mr. Ross (Yale-Cariboo):

Q. Why did you not kill him ?

A. I have reasons which I will explain at any time. But the horse which was suffering from latent glanders was the agency which brought these old stables under suspicion. As case after case kept appearing in the stable the veterinarian and the owner thought it was the stable that was to blame, whereas in reality it was the horse. Here is a copy of the notice which we issued containing a description of the method of disinfection :—

'NOTICE—GLANDERS.

'In districts where the existence of glanders is suspected, and especially in neighbourhoods where actual outbreaks have occurred, the adoption of the following precautions by owners of horses and others interested will do much to prevent the spread of the disease and the establishment of fresh centres of infection.

'1. Horses or mules having a nasal discharge or other suspicious symptoms should not be admitted to livery or feed stables or yards, blacksmith shops, church or school sheds, railway stock yards, private stables or other place where they are likely to come into direct or *indirect* contact with animals of the equine species.

'2. All stables, yards or sheds used for the accommodation of horses or mules should be regularly and frequently cleansed and disinfected in the manner prescribed below.

'3. After cleansing the premises thoroughly and burning all debris, the interior should be well gone over with hot steam or boiling water, adding to the latter at least one quart of crude carbolic acid to each five gallons, after which the entire surface should be thickly coated with a hot solution of fresh lime wash, to which crude carbolic acid has been added in the above mentioned proportion.

'Outbuildings, fences and tieing posts with which infected animals have been in contact should also, when possible, be thoroughly treated in a similar manner.

'All ordinary harness and stable utensils, which have been in contact with infected animals or infected premises should be thoroughly soaked in a hot solution of crude carbolic acid of a strength of one part to twenty.

'Materials which might be injured by the above treatment, such as valuable harness, robes, cushions, &c., which have been in contact with infection, should be placed in an air-tight room and fumigated with formaldehyde, after which they should be thoroughly cleaned.

'4. In stables where outbreaks have occurred or where diseased animals have inadvertently or otherwise, been stabled, even temporarily, the cleansing and disinfection should be especially thorough and in such cases it is safest to remove and burn feed boxes and mangers when of wood ; iron articles can be rendered harmless by passing them through fire or by immersing them for some time in boiling water. All litter from suspected animals should be burned or carefully fenced until used.

'5. Farmers and others should, whenever possible, avoid admitting strange horses or mules to the premises occupied by their own animals especially of the same species. It is a good plan to reserve an isolated building for outside horses or mules, but where this is impossible they may be accommodated in cow stables, cattle not being subject to glanders infection. Such horses and mules should be watered from special pails, which, together with all other stable utensils used on or about them, should be carefully cleansed and disinfected before being used for other animals. Stalls occupied by strange horses or mules should be well cleansed and disinfected and, if at all possible, left unoccupied for some time.

'6. Where new horses or mules are purchased in or from districts where glanders exists, they should, unless carefully tested with mallein prior to purchase, be stabled apart and closely watched for some time before being brought in contact with other animals of the equine species.

'7. It must be borne in mind that while nasal discharge, or ulceration, enlarged glands, the presence of farcy buds, unaccountable swelling of the limbs and general unthriftiness often characterizes cases of glanders, the disease exists in many animals without, for the time being, any external manifestation whatever, the only means of detection in such cases being the mallein test, and that these occult or latent cases are in some respects the most dangerous because unsuspected. Our experience shows that it is possible for animals of this class to convey infection to others without themselves developing acute symptoms. It is therefore plain that great caution should be exercised in the purchase or handling of strange horses or mules, especially in those districts where the disease has become established.

'8. The carcasses of animals dying from or slaughtered as being affected with glanders should, when possible, be burned, or, failing this, buried at least six feet beneath the surface.

'9. Owners of premises where outbreaks have been dealt with should bear in mind that inspectors cannot recommend release from quarantine unless disinfection has been carried out in a satisfactory manner, and that compensation for animals slaughtered cannot be paid until a certificate of cleansing and disinfection has been received by the Minister of Agriculture.

'10. Horse owners should have no hesitation in reporting to this department, or, to its inspectors, the existence of actual, or suspected cases of glanders. The disease has been spreading rapidly of late years and it is a matter of public interest that every fresh centre of infection should be discovered and dealt with as promptly as possible.

'J. G. RUTHERFORD,

'Department of Agriculture, *'Veterinary Director General.*

'Ottawa, March, 1906.'

By Mr. Lake ;

Q. Is this best plan of dininfection ?

A. We use a lime wash with crude carbolic acid in it because it shows when the disinfecting has been done. We take nobody's word for it in a matter of this kind, but we see that our orders have been complied with, and when there is fresh lime on the woodwork of the stable that is pretty good evidence.

Q. Do you use formaldehyde in many stables ?

A. We use formaldehyde in some cases. Where people have old stables we try to get them to burn them. Of course we do not pay them anything for it. Straw roofs are very bad. We like to get a new roof in the case of a stable with a roof of straw. We generally get the man to burn his feed boxes and everything of that kind there is to burn. Sometimes he may be a little obdurate.

By Mr. Fisher:

Q. Formaldehyde vapour, if thoroughly done will disinfect thoroughly?

A. Yes.

APPENDIX No. 2

GLANDERS IN MAN.

By Dr. Walsh:

Q. Do you think it is very important that the parties who are using mallein, as spoken of, for the purpose of disguising the disease, as well as farmers generally, should be thoroughly informed as to the danger of personally contracting the disease and also of its very malignant character?

A. I quite agree with Dr. Walsh. I might say this is a phase of the question which is of great importance in London, England. In that city alone there are now a large number of cases of glanders recognized among human beings every year. Unfortunately these cases are not as a rule recognized by the medical profession until the post-morten, which is rather hard on the patient. My experience of nearly thirty years as a veterinarian in Canada, a great part of it in a country where glanders is very prevalent, has convinced me that a large number of men in Canada die every year from glanders.

By Mr. Ross (Yale-Cariboo):

Q. You must have been a boy when you started up as a veterinarian?

A. I was a boy. I have not done anything else except for a brief period of temporary aberration, from which I soon recovered. In Manitoba last year, for instance, a young lad, a very promising young man, came home. One of the horses on the farm was not well, and it had a discharge from the nose. Now this young man had been reading the *Farmers' Veterinary Adviser,* and some other books and he decided to examine this animal and treat the case. He examined her and filed her teeth and three days afterwards he took sick. A doctor was called in who diagnosed the case as typhoid fever. The patient was treated and some peculiar symptoms developed. Another doctor was then called in, and then they began to inquire as to whether there were any sick horses on the place. The second doctor diagnosed the case as glanders, and the boy died, and died in very great agony. There are other cases I could mention. But I am satisfied a large number of these cases in human beings are not diagnosed. Dr. Walsh's question is certainly very appropriate. I may say in this connection that I hope in the near future to be able to place in the hands of the public a complete and exhaustive report on our work. I think we have done in the last three years perhaps the most important work with mallein that has ever been done in the world. The number of horses we have tested, and the demonstrations we have made as to the utility of mallein, and its inutility in certain directions, will be of very great general value. But really the pressure of work has been tremendous, and, as you know, I have not been very well during the past winter. This has caused delay, and I am sorry I have not been able to get out the report as anticipated.

VITALITY OF BACILLUS MALLEI.

By Mr. Lewis:

Q. How long do you say this disease will last in a stable?

A. About four months in a ward, damp stable.

By Dr. Sproule:

Q. Has it been demonstrated that testing a mare in foal with mallein will affect the animal injuriously?

A. No, not at all. Of course with a mare in foal it would be like a cow with tuberculosis. A violent reaction might have bad effects, but if the animal was healthy that would not occur.

By Mr. Lewis:

Q. If you washed out the pail from which glandered animals had drunk, would that disinfect it?

A. No, it would not be safe.

By Mr. Lake:

Q. Does the germ die quickly in the sun?

A. In the sun it dies very quickly.

By Mr. Lewis:

Q. Is that sheet describing the procedure when disinfecting to go into the evidence?

A. Yes, it will be spread broadcast.

By Mr. Ross (Yale-Cariboo):

Q. You did not explain why the broncos on the hills do not show glanders the same as horses in a stable. That is a matter the farmers in my constituency cannot understand; you kill the good horse, and allow the scrub, the cayuse, to run around the hills?

A. That is easily explained, for the reason that in the range country, where animals or herds left in the open air have become infected with pulmonary disease, of any kind, that disease does not get the same chance to encroach on the general health as it does where the conditions under which the animals live, or are kept, are artificial.

Q. Well, if those horses on the ranges were brought into corrals and stables, and kept the same as the farm animals, they would be just as liable to glanders?

A. Yes.

POST-MORTEMS.

By Mr. Staples:

Q. Is it customary when the presence of the disease is discovered by the mallein test and an animal has been destroyed to hold a post-mortem?

A. We do sometimes hold a post-mortem in the interest of scientific investigation, but as the official in charge of this work, I have been very particular in instructing my officials not to hold post-mortems for the reasons that I have, unfortunately, had the privilege of seeing one or two cases of human glanders, and while I would sincerely regret the killing of any man's horses, through a mistake, or through an error in diagnosis, I would dislike very much to be saddled with the responsibility of causing the infection of any one of our inspectors, by putting him to the risk of holding a post-mortem on a glandered horse. It is a most dangerous business, far more dangerous than the ordinary man has any idea of. A medical man holding a post-mortem in a morgue, with all the appliances to prevent infection, is in a comparatively safe position. The veterinary surgeon holding a post-mortem in the open field, with simply the ordinary instruments necessary to disect a body, and under the conditions which he has to encounter there, is greatly exposed to infection. I may say I have always been a very careful practitioner myself, but I have been repeatedly infected with contagious disease—and on three separate occasions I was infected with anthrax—through holding post-mortem examinations. Speaking advisedly, I will not ask the inspectors of the department to take that risk, having the confidence that I, in common with all other modern veterinarians have, in mallein as a diagnostic agent. There is no objection whatever to any owner employing his own veterinary surgeon and having a post-mortem examination on any animal which is destroyed by our inspectors. In that case the responsibility for assuming the risk of infection is not on my shoulders.

APPENDIX No. 2

Q. That is the very reason why I asked the question if I may be allowed to explain. One of our inspectors, I am not going to mention his name, told me last fall that he was able to bring out certain facts by holding a post-mortem after destroying the first horse. He thoroughly satisfied the owner of the horses that he was quite right in destroying the whole herd. The official in question said: 'You can satisfy the owners of horses in that manner more thoroughly than you can by applying the mallein test.

A. I know the case to which Mr. Staples refers, and the inspector's report, which I have, conveys exactly the same information which the hon. member has given to the committee. I have no objection to an inspector at any time making a post-mortem if he sees fit to do so, and assumes the responsibility himself. But as the head of the branch, I could not conscientiously authorize, or order, a post-mortem examination to be made in every case. I would not do it for anything.

Q. You understand the force of trying to satisfy the public. It is a live question in the west. A great many of those who are having their horses destroyed are of opinion that they are being severely dealt with, and if you can explain to them by a post-mortem that such is not the case, I think provided the risk is not too great that there should be a post-mortem. You see where there are probably ten horses involved it would probably mean $2,500 to that farmer, so that he dies hard, so to speak. It puts him out of business if he is severely dealt with.

A. He would get for his ten horses a thousand dollars, that is for horses which would not be worth ten cents a piece. Glandered horses are not worth ten cents a piece.

Q. I will go a little further than that: I know a man who had five very valuable horses. One of them he thought was probably affected with glanders, it was not thriving very well. He decided to call in an inspector, which he did and the inspector found that this particular horse which the farmer thought was diseased, was perfectly healthy. That being the case the farmer said: 'I have no reason to doubt that my other horses are perfectly healthy, but I will have them tested.' The result was that two of his most valuable horses, showing no clinical symptoms whatever, were taken out and shot. Either of them was worth at least $250, so you can easily understand what a live question it is with us in the west.

Mr. FISHER.—I think that it is one of the most conclusive arguments in favour of the mallein test. Here was a man who had a sickly horse which he thought was infected. He tested the animal and found that he was wrong. But he discovered that two other horses which he had regarded as perfectly safe were infected. Had that not been discovered it might have gone on for years, and the rest of his horses been infected and those of his neighbours. I grant that at the moment he did suffer a severe loss, but as a matter of fact in the long run that man and the whole neighbourhood experienced a great gain in the destruction of those two horses.

By Mr. Staples:

Q. What precautions are adopted to keep the disease from spreading? Now, there was a case of a horse which the doctor knows very well. The horse was imported into Manitoba. It was destroyed as being infected with glanders, but did not react sufficiently to carry the conviction that it had the disease. That horse had been travelling during the season and stopping in stables with other stallions, drinking out of the same pail and eating out of the same box. The veterinarian was apprised of this, and it was suggested to him that it would be wisdom to follow the case up and test the other stallions and also the other horses which had been in the same stable. But that was not done. Now, would you advise your officials to proceed to trace that in order to eradicate the disease?

A. Mr. Staples must recollect that this department only took over the work from the Manitoba government about fourteen months ago. Since that time we have done a little work in Manitoba; a good deal in fact.

Q. Why did you not take over the work from Manitoba at the same time as you did in the case of the other provinces?

A. Because it was in the hands of the provincial authorities, and it was for them, as was pointed out to the premier, Mr. Roblin, to agree to our taking it over. However, this is not a matter you should ask me about; ask my minister who is here.

Mr. STAPLES.—If I am out of order I will not ask you.

Mr. FISHER.—That is a matter of administration and policy.

DR. ROTHERFORD.—That was my reason for not going on. I started to answer the question, but recollected the minister was here, and it is for him to speak about questions of policy.

By Mr. Cash:

Q. I have not been here during the entire meeting. Has it developed during the discussion as to the time at which this disease is contagious in a horse? Do you claim that it is contagious, or has that been brought out?

A. We have had a good deal of discussion about that.

Q. Do you consider it contagious until after the clinical symptoms develop?

GLANDERS IN MANITOBA.

A. My evidence, I think, explains that. I was going to say to Mr. Staples that in Manitoba between November 1, 1904, and March 31, 1906, we have destroyed .871 horses, and compensation has been paid for those horses to the amount of $68,726. I was for a long time in Manitoba engaged by the local government. I began operations under the Norquay government as inspector in Manitoba, and I dealt with a great many cases of glanders in my district, which was a very large one in the early days. I used to kill horses then and we paid no money for them, there was no compensation. Some of the municipalities paid compensation, but the large municipalities of Portage la Prairie, Westbourne and Beautiful Plains did not pay anything. The consequence was that the poor farmer was a heavy loser. I have known farmers to lose a dozen horses one after another. Sometimes there would be two and three taken at a time, and I have myself, as inspector, buried five and six horses on one farm where the man did not get a cent of compensation. Now, I do not mean to say that in one short twelve month we have been able to elaborate in Manitoba an absolutely perfect system of dealing with every reported case of glanders. We have done in the province an immense amount of work, and with the exception of one or two isolated cases, one of which is the case Mr. Staples referred to a little while ago, we have had absolutely not a word of complaint from Manitoba, in spite of the number of horses which have been killed and paid for. So I think while we are always open to criticism, and I gladly welcome criticism, because it makes us try to do better and to improve our work, we ought to be allowed a little credit for having done fairly good work in Manitoba in the short time we have been operating there under very trying conditions.

Mr. STAPLES.—I hope the doctor does not imagine that I intended to insinuate that he or his staff were not entitled to credit. Not by any means. I am not here to cast any reflections upon the work the department is doing with respect to glanders.

By Mr. Chisholm:

Q. What other subjects do you desire to speak upon?

A. I have on my list hog cholera, sheep scab, Pictou cattle disease, maladie du coït, mange in cattle and tuberculosis in cattle.

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By Mr. Staples :

Q. Before you leave the question of glanders, I would like to ask if there is any form goes into the department showing what was discovered in the testing ?

A. Oh, yes.

Q. That comes in from the inspectors ?

A. Yes.

Q. What facts are set out in it ?

A. (Producing document.) Here is one of the forms.

By Mr. Cash :

Q. I understood you to say that you had answered the question I asked ?

A. Yes, the statement I read covered that.

Q. Some one here said they had not heard it. I thought perhaps you had made the point ?

A. What is it ?

Q. Through what medium is the disease conveyed ?

A. Generally, as I said, by inhalation, or by direct or indirect infection through a nasal discharge which, while appearing normal is really a bearer of infective germs.

By Mr. Lewis :

Q. At what stage of the disease is it really first infectious ?

A. I could not tell you that. I am inclined to think that it is infectious at almost any stage.

Q. Can it be cured in a human being ?

A. Cases are on record where human beings have recovered.

Q. It is different from the same disease in animals ?

A. Well, it is generally more rapidly fatal in human beings than it is in animals. The latest researches would seem to show that after passing through the human system it becomes even more virulently infectious to human beings.

Q. From the human being ?

A. Yes.

Q. Is the mallein test used on human beings ?

A. It has been used, but it is not considered advisable in the case of human beings, because it causes the development of clinical symptoms. I might say that we occasionally have that same thing happen in horses. Not infrequently we see a horse which has shown hitherto no clinical symptoms of glanders, but on being tested with mallein immediately develops the nasal discharge, the swelling of the glands, and the other symptoms.

Q. There are cases, you say, where horses suffering from glanders have lived for three years and continued to work ?

A. Yes.

By Mr. Clarke :

Q. I understood you to say they do recover in the early stages; do they entirely ?

A. Some horses do apparently.

Q. They cease to react, and you consider them cured ?

A. Well, I read my opinion in regard to that. That is an important point in regard to which I have to be very careful in expressing an opinion, and I read that opinion.

Q. Where they cease to react you set them free ?

A. As I said, I dwelt upon that very fully in my evidence which I read.

By Mr. Martin (North Wellington):

Q. Have you had reports of glanders in Wellington county ?
A. Yes, but not recently.
Q. Would it be traceable to these bronchos coming in from western Canada ?
A. We have absolutely no evidence to that effect.

Having read over the preceding transcript of my evidence, I find it correct.

J. G. RUTHERFORD.

HOUSE OF COMMONS,
COMMITTEE ROOM No. 62,
MONDAY, May 7, 1906.

The Select Standing Committee on Agriculture and Colonization met here this day at 10.30 o'clock a.m., Mr. McKenzie, chairman, presiding.

Dr. RUTHERFORD, Veterinary Director General, appeared before the committee, by re-call, and was examined as follows :—

Mr. Chairman and Gentlemen,—On Friday last we had a brief résumé of the work of the last four years, followed by a discussion on the disease known as glanders.. This morning I have notes on a number of diseases : tuberculosis, hog cholera, madalie du coït, sheep scab, Pictou cattle disease, and mange in cattle.

By Mr. Lewis :

Q. Let us have maladie du coït ?
A. Which ever you like. With the permission of the committee, I will follow the same course as I did on Friday. I will read first a brief disquisition on the disease, and after that we can have the discussion.

MALADIE DU COÏT.

It is somewhat difficult to make a definite report with regard to this disease, as owing to its exceedingly insidious nature, and the difficulty of diagnosis in the earlier stages it is possible for it to exist undetected for a considerable time in districts where its presence is altogether unsuspected.

As stated in my last report, the presence of maladie du coït in Canada was first discovered in March, 1904, when Inspector Burnett, Chief Veterinary Officer of the Royal Northwest Mounted Police, reported its existence in a stallion and several mares, the property of Mr. W. T. McCaugherty, residing near Lethbridge.

In the course of the investigation, which was immediately thereafter inaugurated, I decided, in order to eliminate any doubt as to the nature of the disease, to ask Dr. Salmon, then Chief of the Bureau of Animal Industry, at Washington, to be good enough to instruct one of his inspectors familiar with maladie du coït to visit Lethbridge for the purpose of examining the suspected animals. In response to this request, Dr. Salmon despatched to the scene Dr. E. T. Davison, of Rushville, Nebraska, an experienced inspector, to whom had been entrusted the work of dealing with maladie du coït in South Dakota and other western states. Dr. Davison had no hesitation in confirming my diagnosis of Maladie du coït, and so reported to Dr. Salmon, under date May 14, 1904.

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The identity of the disease having been thus established, it remained for the department to decide upon the adoption of a definite policy, having in view its early and effective eradication.

Maladie du coït, or dourine, is a remarkable disease, inasmuch as while it has been the subject of research and investigation for upwards of a century, scientists have not yet been able to agree as to its true nature or the best means of dealing with it.

As an indigenous—disease, in Asia and Northern Africa, it appears, in these countries, to run a definite course, which as a rule terminates fatally after the lapse of a period of from three months to three years.

In Europe, however, and also in America, its behaviour is much more uncertain and irregular, a feature which, while perhaps not without its advantages in individual cases, tends to complicate and render more difficult the task of dealing with it in a prompt and effective manner.

Owing to the fact that at the time the existence of the disease was discovered in Alberta, there was no provision for the payment of compensation to owners whose horses might have to be slaughtered, I thought it best to establish a quarantine station in which the suspected animals might be detained under observation, with a view to the destruction of those which might prove to be undoubtedly affected. This was accordingly done, and in this station were placed the diseased animals discovered in the first instance, together with a number of others picked up during the summer of 1904 by inspectors especially engaged for that purpose. I few small lots were also quarantined on the premises of the owners.

In September, I again visited the quarantine station, and after examining a surprised to find that the disease had not developed to any serious extent, even among some of the cases which were most clearly marked in the previous spring. Being anxious to give the suspects the benefit of any possible doubt, and being also desirous of acquiring as much information as possible as to the behaviour of the disease in what was to it an entirely new habitat, I decided, instead of slaughtering any of these cases, to keep them under observation for a further period, and arrangements were therefore made to continue the quarantine during the winter.

In May, 1905, I again visited Lethbridge, accompanied on this occasion by Dr. Burnett, Chief Veterinary Officer of the Royal Northwest Mounted Police; Dr. Hargrave, of Medicine Hat; Dr. Warnock, of Pincher Creek; Dr. Higgins, our pathologist, as well as several other inspectors of the department.

On making the examination, it was found that in a considerable number of the quarantined mares, the disease had made marked progress, while in others, but little change from the conditions shown on previous occasions was noticeable, although the number of these unquestionably free from disease was very small indeed. Several of those in which the symptoms were well marked were slaughtered, the post-mortem examination held in each case showing clearly that the animals were undoubtedly affected with maladie due coït.

Proceeding cautiously, and making a careful autopsy on each animal as it was killed, some 116 head were destroyed. A considerable number, however, in which the symptoms were not sufficiently well defined to justify me in ordering their slaughter were quarantined, some at the station and others on the premises of their various owners. Meanwhile, three of our inspectors, namely, Burnett, Hargrave and Warnock, each of whom had had special opportunities to familiarize himself with the disease, were authorized to order the slaughter of any clearly marked cases which might be brought under their observation.

I might say in this connection that I did not think it advisable, nor do I now think it advisable, to allow the destruction of these animals by our ordinary veterinary inspectors. Speaking from my own personal knowledge, the difficulty of diagnosis is so great, and the possibility of making mistakes is so constantly present, that I have limited the power of ordering slaughter to these three gentlemen whom I have named, and more recently, as I mention later on, one other veterinary officer was ap-

pointed, so that there are to-day only four of our inspectors who have authority to deal with the disease in so far as ordering slaughter is concerned.

During the summer a number of outbreaks were dealt with by these gentlemen in various parts of Southern Alberta.

In September, I again visited the quarantine station, and after examining a number of animals there, decided to slaughter all but a very few, which after having been retained under observation for upwards of twelve months, appeared, so far as I could judge, to be quite healthy.

At this time, also, in addition to the officers already mentioned, I authorized Dr. Gallivan, of Lethbridge, to order the slaughter of affected animals, and to deal generally with any outbreaks of the disease which might be reported to him. At the same time, in consideration of the fact that, as stated above, the knowledge of this disease possessed by the veterinary profession, even among those who have had most experience with it is very far from complete, I, with the approval of the minister, arranged for the utilization of the existing quarantine station at Lethbridge for experimental work. A house and stable were erected in close proximity to the corrals, and within the fenced enclosure of 1,800 acres which had been provided the previous year, and Dr. Hadwen, our inspector at Nelson, B.C., a gentleman who has given considerable attention to pathological research, was placed in charge, a number of condemned animals being left at his disposal.

So far the information at present in possession of the department would indicate that the disease is confined to Southern Alberta, where it unfortunately exists in several different localities. Of the various outbreaks discovered, some are traceable without much difficulty to animals infected while running on the range near Lethbridge, where the disease, as already stated, was first recognized in Canada. The actual starting point of the infection in this case never has been discovered, although there can be no reasonable doubt that it originated among animals imported from some of the infected districts in the northwestern United States. Of the other outbreaks, one is traceable to horses brought from Utah, another to an importation from Oregon, while in the third case a strong suspicion attaches to a band of mares purchased in Montana. It is only fair to say that the United States authorities, as well as those of the individual states, have reported after investigation, that they have been unable to find the disease in any of the districts where the suspected animals originated. The evidence in our possession, however, has an entirely contrary bearing on the case, and when one remembers the remarkably insidious nature of the disease and the fact which is undeniable, that it has existed to a greater or less extent on the open range is several of the western states for an indefinite period, the reasonable inference is that the presence of maladie due coït in Alberta is due to infected mares or stallions imported by persons, let us hope, ignorant of the terrible scourge which they were introducing among Canadian horse breeders.

As already indicated, it is almost impossible for even an experienced and skilful veterinarian to diagnose maladie du coït with any certainty during its earlier stages and when in addition it is remembered that individual cases, especially mares, remain infected for years. while showing practically no visible evidence of disease, it is not surprising that among the many thousands of horses brought across the line since the rush of settlement began, there should have been some bearing the germs of his loathsome malady.

The difficulty of diagnosis remarked upon and regretted by those familiar ith maladie du coït in every country where its presence has been noted, is accentuated in America by two peculiar and so far unexplained circumstances. One of these is the fact that the Trypanosoma Rougeti, or as it is sometimes called, Equiperdum, which has been detected in the blood and other fluids of affected animals in Asia, in Africa, and latterly, though with less regularity, in Europe, has never, so far as I am aware, been recognized on this continent. The constancy of this organism, easily demonstrated by Lingard, in India, and by Buffard and Schneider, in Algeria, in both of which countries the disease is thought to be, and probably is, indigenous, was until last year,

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questioned by leading investigators in Europe, notably by Marek, Kern and Hutyra in Hungary. Early in 1905, however, Buffard and Schneider were able to demonstrate its presence in French cases, and about the same time it was also recognized by Marek, thus corroborating the work of Nocard and Leclainche, who had previously identified the organism.

The other peculiarity observed in this country is the apparent mildness of the infection in many cases. In Asia and in Africa, maladie due coit, or Dourine as it is there generally termed, seems, from all accounts, to run a definite course, the symptoms throughout being fairly well marked and the termination almost invariably fatal within a period of three years at most.

In America, on the other hand, the infection is frequently much less virulent, many cases, especially in mares, being so lightly marked as to attract little or no attention, while some apparently tend towards recovery. Whether or not such cases would eventually regain the normal condition, and especially whether they would become non-infective, our experience in Canada has hitherto been too short to permit of my offering any opinion.

Available reports regarding maladie du coït in southern Europe indicate that this tendency to mildness of attack and generally impaired malignity, is also observable there, although perhaps to a less degree than in America.

When in considering these facts we remember that the apparently specific trypanosoma, constant and easily isolated in those tropical countries where maladie du coït has its natural habitat, is exceedingly difficult of detection in Europe, and so far has been found not at all in America, it surely affords some ground for the hope, hinted at in my report for 1904, that in our northern and notably healthy climate the disease may prove to be actually less destructive than we at present fear.

The experiments already referred to are being conducted in the hope of obtaining a more thorough knowledge than we at present possess regarding this and various other matters pertaining to the disease.

A number of mares of the doubtful class mentioned above are being held under close observation. Breeding experiments with stallions, both healthy and diseased, will be systematically carried on, and the various results carefully noted. It is also my intention to remove the ovaries from several of the experimental mares, it having been found that stallions castrated in the early stages occasionally recover and become useful work horses. Whether or not similar beneficial results will follow the corresponding operation in the female remains to be seen.

In addition to these practical experiments, Dr. Higgins here, and Dr. Hadwen at Lethbridge, are engaged in a close study of the pathological conditions presented by the diseased animals.

In order to give the former an opportunity of working to advantage, I last fall brought to the biological laboratory three infected mares, of these one succumbed to the disease in December, but the others, although they were among those examined and pronounced diseased by Dr. Davison two years ago, are still alive, one being apparently but little the worse, although the other is evidently breaking down.

Despite all that I have said it would, in view of the history of this scourge in other countries, be unwise to relax in the slightest degree our efforts to effect its eradication especially as it is at present, so far as known, confined to a comparatively limited area.

The task, however, is a delicate and difficult one owing to the uncertainty attending diagnosis and the loose conditions which characterize breeding operations on the western ranges.

SUMMARY OF HORSES SLAUGHTERED AND COMPENSATION PAID.

The expenditure to date in compensation for horses slaughtered, while undoubtedly considerable, is a mere trifle in comparison with the appaling losses sustained

in countries where maladie du coït has been permitted to spread unchecked. The following are the figures:—

	Killed.	Value.	Compensation.
1904-05	292	$24,045	$16,029 94
1905-06	120	10,210	6,806 48
Total	412	$34,255	$22,836 22

HORSES SLAUGHTERED IN THE YEAR FROM NOVEMBER 1, 1904—OCTOBER 31, 1905.

	Outbreaks.	Slaughtered.	Suspected.
Seven Persons	7	8	17
Macleod	1	1	—
High River	3	37	4
Spring Point	2	2	6
Little Plume	10	36	33
Medicine Hat	31	51	92
Gleichen	1	1	—
Irvine	1	1	—
Coleridge	1	1	—
Woolchester	3	2	4
Eagle Butte	4	1	6
Lethbridge	4	1	3
Cardston	4	34	2
Quarantine grounds, Lethbridge	—	116	—
	72	292	207

HORSES SLAUGHTERED IN THE YEAR NOVEMBER 1, 1905—MARCH 31, 1906.

	Outbreaks.	Slaughtered.	Suspected.
Little Plume	2	7	5
Seven Persons	2	5	2
Cardston	3	4	8
Medicine Hat	5	18	2
Taylorville	1	15	4
Brunton	1	2	—
Lethbridge	3	4	15
Rush Lake	1	7	—
Nanton	1	1	—
Calgary	1	1	—
Macleod	2	2	1
Stirling	3	8	35
Spring Point	1	1	6
Millarville	1	1	—
High River	3	35	3
Willow Creek	1	6	—
Tabor	1	2	3
Raymond	1	1	—
Piegan Creek	—	—	1
Okotoks	—	—	6
Magrath	—	—	19
Lineham	—	—	2
Totals	33	120	112

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By Mr. Lewis:

Q. Are those all in the Northwest ?
A. All in Alberta now.

By Mr. Derbyshire :

Q. What are the symptoms ?
A. I recently published a bulletin on it. I do not think we need go into the symptoms here. We shall be glad to furnish copies of that bulletin. It is perhaps better as reading matter.

By Mr. Blain :

Q. Is the compensation paid for this disease the same as for glanders ?
A. Yes.
Q. And are the regulations the same ?
A. Yes, the same in effect. As I mentioned, they are even more stringent inasmuch as the slaughtering power is restricted.

By Mr. Wright (Muskoka):

Q. Does the disease seem to be spreading ?
A. I do not think it is spreading, but the difficulty is to detect its presence. In a thickly settled country where horses are kept in stables or in fields and are under close observation, especially during the breeding season, the disease is comparatively harmless, because its existence can be easily detected. But, of course, on the range there are stallions running at large. We have done our best to stop that, but still in spite of everything some stallions run at large in that country, and it is the same with growing colts. In the case of Indian ponies it is hard to educate an Indian up to the point where he will either castrate his colt or keep the stallion under control, and they have given us a good deal of trouble. As you can easily understand, a stallion which covers an infected mare on the range becomes himself an infective centre. He will cover, in the course of a few weeks, perhaps fifty to a hundred other mares, the majority of which also become infective centres, and other stallions which are in the neighbourhood become infected in that way. It is like an endless chain, and it is exceedingly difficulty for us to give any definite statistics as to its existence. We are doing our best to follow it up, and we have a number or range riders out for that purpose, and we are also trying to get the co-operation of the breeders to as great an extent as possible.

Mr. HERRON.—The difficulty of that disease is that it extends over a great area of country. In the case of the points enumerated by the doctor the distances are not familiar to most of you, but they cover an area of perhaps 40,000 square miles. There are horses in very large herds, perhaps a thousand head in a herd, and there are numbers of herds together running at large on the ranges. In some cases there may be 3,000 or 4,000 head of horses running at large over an area of country of perhaps 20 or 30 miles. As the doctor has also said, there are these young stallions, or growing stallions, running at large on the ranges. It is not always possible to detect the stallions, that is the year-olds and the two-year-olds, and therefore it is difficult to follow up the disease. In that county the horses will run at large, and it is impossible to keep them under observation. That is the case both in summer and winter, and you can easily see what a great loss it will be to the men in the business by the disease spreading. I think the steps taken by the department are the most effective that could be taken, only I hope they will be followed out in the strictest way possible, because these horses, mare and stallion are being gathered up on those ranges and sold. Perhaps there will be young stallions between two and three years old taken off the range, sold, and shipped to other parts of the Dominion; and the same with mares. You can easily

see it is very hard even for a veterinary inspector to detect the disease when these mares are being shipped out. That will give you an idea of the difficulty there is in treating the disease.

By Mr. Greenway :

Q. I would like to ask the doctor if a more rigid inspection at the boundary line than has hitherto been adopted is necessary? The report which he has just given the committee indicates, as far as can be learned, that the disease has been imported by the bringing in of horses from the adjoining states. I have had some experience in this particular matter. We had a good deal of difficulty in the provincial Department of Agriculture at Winnipeg in connection with it, and we have almost invariably been able to trace the origin of the disease in a particular locality to the importation of Montana horses. It is most important that means should be adopted to have a more rigid inspection at points where these animals are brought in.

A. In answer to Mr. Greenway, I would say that we discussed this matter to some extent on Friday, in relation to glanders, and that the restrictions have been amended and made much more stringent during the last two years. Speaking, however, as an official of the Department of Agriculture, and as the official held responsible to a large extent for the introduction and spread of disease, I am prepared to go very much farther than we go at the present time, and I might perhaps drop the hint that a little salutary endorsation by this committee would not be out of place in that direction.

By Mr. Telfer :

Q. Do you not think it would be absolutely necessary in order to prevent these undesirable stallions and horses from coming into Canada to have a wire fence on the international boundary line as well as the restrictions that you seem to indicate are necessary in order to keep the animals out ?

A. I would say in reference to that, that ever since I took office I have been reporting on the necessity of a fence along the international boundary, not only in the case of stallions, but in the case of mangy cattle, mangy horses, glandered horses and other diseased animals, in order to have a perfect check on the importation, and to enable us to say without any doubt or without any fear of contradiction, that we are inspecting every animal brought in. It is indispensable that some provision other than exists at the present time should be made for the better demarcation and guarding of the boundary line.

By Mr. Ross (Yale-Cariboo) :

Q. There has been some fences built there. Can you tell us if there is any arrangement with the United States for putting up fences on the boundary at the joint expense of both countries, in other words, international fencing ?

A. So far as I am aware, there has been no international fencing at all. Along the Flat Head Reserve in Montana there is a fence put up by the Indian Department of the United States with which this government has nothing to do.

Q. I remember that last session there was an alleged scandal in connection with some wire fencing ?

A. I do not know anything about scandals, I am speaking about fences.

By Dr. Sproule :

Q. I would like to ask what the nature of this disease is, whether it is purely venereal, and if so, as to how far it will affect the reproduction of the species, and whether it will run itself out as many of these venereal diseases do. They all seem to run out in time ?

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A. This disease belongs to that peculiar class which is due to the presence in the blood of a Trypansoma. It belongs to the same class as surra, nagana, the sleeping sickness of Africa, the tick fever of Texas, and malaria in human beings, and, as I have endeavoured to explain, the interesting question is as to whether or not these germs lose their vitality to a certain extent in a country such as Canada where the disease is not indigenous, for it is really a tropical disease, and particularly in a climate like that of Alberta, where the conditions are simply perfect so far as regards hygiene, diet, and everything else for horses that are properly looked after. I have been all along in the hope that the disease would not prove as serious as in other countries.

By Mr. Blain :

Q. Has it been serious in the United States ?

A. In some places, yes. It was imported by means of a Percheron stallion to De Witt county, Illinois, in 1882. At first its true nature was not recognized, and for five years that horse remained infective, and other horses and mares kept on becoming infected. When the government finally awoke to the seriousness of the situation a number of animals had been shipped out of the district, with the result that outbreaks have taken place from time to time in different states of the union. As I said before, in communities thickly settled, where horses are kept under observation, the disease is generally comparatively easy of control, but on the ranges in the United States or in Canada, the work has been attended with great difficulty. In further answer to Dr. Sproule, I would say that while the only natural manner know to scientists by which the disease can be spread is through coition, it can, of course, be artificially transplanted from one animal to the other. Dr. Lingard, who was for many years Veterinary Director to the Civil Government of India, and who is now in charge, on behalf of the Indian government, of all research work in that great country, states that there is a danger of its transmission by flies. That, of course, we can believe is possible, provided a fly were to go directly from an infected organ and settle on an uninfected genital organ. I do not think there is very much danger of that, because there is practically no record of the disease having occurred naturally in geldings, which is very strong evidence that it is transmitted in a natural way only by copulation.

By Dr. Maclennan :

Q. Is the disease to be classed as syphilis in the human being, or gonorrhœa ?

A. No.

Q. There is no known case in Ontario, doctor ?

A. No.

By Mr. Blain :

Q. Is there any regulation in force between the different provinces with respect to glanders and other diseases such as you have mentioned ?

A. Do you mean as respects the movement of horses from one province to another ?

Q. A farmer from Ontario may go up and purchase horses suffering from glanders in the Northwest. Would he have the right, without inspection, to bring them down into Ontario ?

A. We cannot, under the Animal Contagious Diseases Act, pass regulations prohibiting the movement of animals from one province to another except when we declare a district quarantined. The minister could declare, under the Act, a whole province an infected place.

Q. Do you not think that would be a wise regulation to adopt just now with respect to glanders, for instances.

A. I explained that on Friday. I think you will remember we looked at the map, and I pointed out the difficulty that at once would arise. The percentage of affected animals found in Southern Alberta is so small that we would by imposing a quarantine

on the whole district, prevent our fellow citizens in Alberta from selling their healthy horses.

Q. Would it not be possible to have some sort of inspection between the two provinces ?

A. We do that now in reference to mange. We have an order now covering practically the same ground as this, whereby horses moving from quite a large area when shipped are subject to inspection for mange before they are allowed to be moved out.

Q. Why not have such a regulation for glanders ?

A. I have no secrets from the committee, and I will tell you just why we have not got that provision. An inspection for glanders without the mallein test is practically useless. No sane ranchman or horsedealer would bring to an inspector of the department animals showing evidence of being affected with glanders or evidence of being affected with this disease, and it is impossible for our inspectors to say definitely offhand whether or not horses are affected with glanders, or whether or not they are affected with this disease with which we have been dealing. The consequences would be, in the event of an outbreak of glanders or of this disease, following the movement of animals from Alberta to any other part of the Dominion, the department through one of its inspectors having passed this animal out as sound would be in a very peculiar position. I do not quite know what the solution of the difficulty is.

Q. The movement of horses is not very great, I would suppose, say, between Alberta and Manitoba, is it ?

A. Oh, yes, it is very large.

Q. It is certainly not very large between Alberta and Manitoba to the province of Ontario ?

A. It is not very large, but unfortunately there are a number coming down all the time.

Q. That is a dangerous part of it, I would think ?

A. Yes.

Q. It seems to be that some regulation might be adopted whereby there might be a complete inspection of animals coming eastward from those parts of the west which are affected, say with glanders, ought to be enforced by the government ?

A. I quite agree with you, and the matter is one which has held the attention of the department for a considerable time. The question is whether it would be possible to make such an inspection effective without applying the mallein test in the case of glanders and without holding the animals sufficiently long to make a very thorough inspection in the case of maladie du coït.

Q. Even so, in the case of glanders it would be in the interest of the country that the horses should be held because the compensation item is getting to be an enormous expense on the country ?

A. Quite true ; but then we are face to face with the difficulty which I mentioned on Friday, and to which I again alluded this morning, viz., that we are bringing at the present time into that western country every year from twenty to thirty thousand head of horses, which it is claimed are actually and absolutely required by the new settlers. Now we cannot impose restrictions on the Alberta horse breeders, and I do not think it would be fair for us to do so, which we would not at the same time be prepared to impose on horses brought in from the United States along the international boundary line.

Q. All that seems to be reasonable, but it does appear to me that the department should endeavour to provide for some closer and more rigid inspection of horses coming eastward from those districts where the disease is spreading. I do not say it would be proper to have a rigid inspection of horses coming eastward from the west alone. I would have the same rigid inspection enforced in respect to horses going from Ontario to the west ?

A. It is a very large question and a very difficult one. For instance, last fall, and I just quote this as an instance, when glanders made its appearance in Vancouver,

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the people of Victoria demanded instantly that a quarantine should be imposed against the former city and the mainland, and within three or four days the people of Vancouver demanded that a quarantine should be imposed against Vancouver Island. If we protected the island of Vancouver against the mainland every other country in the world would say, 'You must protect us also,' and that would entail subjecting to the mallein test every horse that was sold and was leaving Canada.

Q. I know it is a difficult problem. Let me ask you what amount of money was paid for glanders—I mean compensation for horses destroyed in the province of Ontario last year? I think it is very small?

A. From the beginning, that is from September 19, 1904, to March 31, 1906, the figures are as follows: Quebec, 489 horses slaughtered, which cost $34,957.51; Ontario, 203 horses slaughtered, which cost $16,019.14; Manitoba, 871 horses slaughtered, which cost $68,726.61; North-west Territories, 1,254 horses slaughtered at a cost of $81,597.62; British Columbia, 710 slaughtered at a cost of $52,429.68; Yukon, 10 slaughtered at a cost of $700, making a total of 3,537 horses destroyed and $254,430.56 paid in compensation.

By Mr. Ross (Yale-Cariboo):

Q. These figures are included in your evidence, are they not?

A. I did not reach them on Friday, but I think they should be included.

By Dr. Maclennan:

Q. Are there any horses left in the country?

A. Yes, a large number.

By Mr. Blain:

Q. My point was that of course the disease exists to an alarming extent in Western Canada as compared with Ontario and other provinces in the east when you consider the large number of horses to be found in the east?

A. Yes.

CLINICAL SYMPTOMS.

By Mr. Lewis:

Q. Are there any more figures there that should be in?

A. I think it would be a good idea to include all these figures. From November 1, 1904, to March 31, 1906, there were 3,476 horses slaughtered and the compensation paid was $253,710.56. I want to call your attention to one point that is very interesting. As I say, there were 3,476 horses killed, and out of this number there were 1,485 which showed clinical symptoms. That was a very much larger number of glandered horses, as you can see by reference to my former reports, which I have here, than had ever been killed before within a similar period. Every one of the 1,485 was a clearly marked clinical case of glanders showing the advantage of paying compensation so as to bring the presence of this disease in different localities to light in a way it had never been brought before. There were 8,897 horses tested, of which number 3,119 reacted and were destroyed. Now, remember that out of the 8,897 not one horse was tested unless there was a suspicion of his being infected. Not a single horse was tested unless he either showed suspicious symptoms or had been in contact with a clinical case of glanders. So you see that when there were 8,897 horses tested and only 3,119 reacted and were destroyed it is pretty good evidence that the work is being conducted in a careful and conservative way. Of the 3,119 reactors 1,128 were clinical cases. The disparity between the 1,485 to which I referred previously and the 1,128 I have just mentioned is explained by the fact that those comprising the difference between the two numbers were such clear and well marked cases of glanders that it was

not necessary to apply the mallein test before ordering their destruction. During that same period 174 horses ceased to react. In reference to that I would say that the reason why the number which ceased to react is so small, is that they were not given an opportunity to cease to react. Under the new regulations they are killed, whereas formerly they were held for a longer time and therefore a larger proportion of those horses ceased to react. We do not now give them the opportunity of showing whether they will react or not.

INSPECTION OF IMPORTED HORSES.

By Mr. Blain:

Q. Is there a rigid inspection of the horses coming in from the United States?
A. Yes.
Q. Is it a close inspection?
A. Yes. The minister is considering at the present time very seriously the adoption of even more stringent and more radical measures to prevent the introduction of disease. But it is an exceedingly difficult and delicate matter to deal with.

WILD HORSES IN BRITISH COLUMBIA.

By Mr. Ross (Yale-Cariboo):

Q. Has your attention been directed to the very large number of wild horses that are running on the ranges of British Columbia, and which are rapidly increasing, from a health point of view, and have you any authority for taking measures in respect to them? I may say they are absolutely useless horses.
A. Yes, I know about those horses, and it is a very serious matter. Of course no one can get close enough to the animals to inspect them, and my own opinion is that they should be shot down.
Q. There was a provincial legislation last session in reference to them. What authority has your department to deal with those horses?
A. We have none.
Q. None at all?
A. Not unless we found that they were affected with disease.
Q. You cannot catch them?
A. No.

By Mr. Lewis:

Q. Are they of no use?
A. None whatever.

By Mr. Ross (Yale-Cariboo):

Q. They are rapidly multiplying, too?
A. Yes.

By Mr. Lewis:

Q. Why are they not of any use?
A. Because they are actual wild horses.
Q. Could they not be tamed?
A. I suppose they could after a generation or two, but they are horses that have been bred in a state of nature.

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By Mr. Wright (Muskoka):

Q. I suppose your department is in communication with the department in British Columbia in connection with this matter?

A. We are in close touch with the provincial department. Our chief inspector in British Columbia is also in the employ of the provincial government, and the two departments work hand in hand in these matters. I have no doubt whatever that we will be able to come to some decision as to those horses before very long. There have been a great many things before the department, and this is one that we have not been able to deal with yet.

By Mr. Herron:

Q. What is the system of examination at the international boundary line, in order to detect whether there are any cases of maladie du coït or glanders, and also with respect to these wild horses?

A. As you know, we have at Emerson, North Portal, Wood Mountain and other points in Manitoba and the Northwest Territories, and in British Columbia at Gateway, Nelson and Midway built new corrals, in each of which there is a first-class up-to-date squeezer.

SQUEEZERS AND DIPPING VAT..

By Mr. Ross (Yale-Cariboo):

Q. An up-to-date squeezer?

A. A squeezer. When you go out west look at that one at Midway, Mr. Ross, and you will see what it is. We also have dipping vats, and the instructions to our inspectors are to put every individual horse that is not thoroughly broken and that cannot be approached quietly, through the squeezer, and examine him in every w ay, shape or form. I would not like to swear that it has been done in every case.

By Mr. Lewis:

Q. What is the squeezer?

A. It is a very simple arrangement which I can illustrate in a moment. This is a very rough way of putting it, but it will give you the idea in a measure. The horse is put in there. There are two gates. There is a gate here, a gate there, and this is solid. He is put in there, and one of these gates, either one, is brought up against him and he is just held right there so that he can be examined.

By Mr. Derbyshire:

Q. He cannot wiggle?

A. He cannot wiggle.

By Mr. Hughes (P.E.I):

Q. Would those wild horses of which you have made mention be the means of disseminating disease?

A. If a number of the herd became infected, yes, undoubtedly.

Q. If I understood you aright you stated that young stallions being allowed to run at large might cause that particular disease to spread?

A. Well, that may be because of carelessness in castrating. Our inspectors are inclined to be a little high-handed under the regulations. We generally castrate any colts we find running on the range.

Q. Would it be practicable to round up and castrate all these young stallions you find?

A. Oh yes, that is done, but still there is an odd one liable to slip past now and then. In regard to maladie du coït, the regulations which are now in force are printed at the end of that bulletin (producing bulletin), and in these regulations provision is made for the castration of horses found running at large.

By Mr. Christie:

Q. Is there any way of stopping those wild horses from coming across?

A. Do you mean the western horses?

Q. Those western horses coming from the other side?

A. Well, the trouble is, Mr. Christie, that we have a very large settlement going on in the west, and, as I said before, from 20,000 to 30,000 horses are being brought in every year. The settlers claim it is absolutely necessary that they should have the means of getting cheap horses. As far as I am concerned I am consistently placing every possible obstacle in their way, with a view to the preservation of the health of our own horses, but this department, of course. is not the only department of the government—there are others—and outside of my own particular branch I have nothing to do with the policy of the government.

By Mr. Chisholm:

Q. Will you now deal with the subject of the Pictou cattle disease?

A. I would like, with the indulgence of the committee, to read a memorandum on that matter.

PICTOU CATTLE DISEASE.

I am glad to be able to report that the results of the investigation into the nature and causes of Pictou cattle disease, which was begun at Antigonish, in October, 1903, and have been sufficiently definite to warrant me in recommending the removal of this malady from the list of those coming under the operation of the Animal Contagious Diseases Act. For upwards of twenty years it has been the policy of the department to order the slaughter of affected animals and to pay compensation for them, as also to insist on the disinfection of the buildings in which they had been kept. During the whole of this time, and in fact for many years previous, the more intelligent residents of the district in which the disease prevails have been of the opinion that it is not only non-contagious, but that its prevalence is due to or connected in some way with the weed known as Senecio Jacobæa or Ragwort, locally known as Stinking Willie. Evidence existed to show that the disease was unknown until the weed in question was accidentally introduced with ballast brought from Scotland to the town of Pictou, some fifty years ago. Once established the plant spread gradually through the surrounding country, extending, however, owing to the prevailing winds, the seed being light and easily carried by their agency, to a much further distance eastward than westward of its original starting point. Shortly afterwards the disease made its appearance, and although some years elapsed before any suspicion as to the weed being its cause was aroused, it was at last noted as a peculiar coincidence that only the cattle kept in weedy area were affected. As time passed it was further observed that the mere presence of the plant in a district was not apparently sufficient to produce the affection, but that it was only after it had obtained a firm foothold in the pastures and meadows that the disease began to make its appearance.

About the year 1882 an attempt at investigation was made, and some experiments were undertaken with a view to ascertaining whether or not there was any foundation for the popular belief as to the connection between the weed and the disease, which, by this time, had been recognized as a peculiar and almost specific cirrhosis of the liver. Unfortunately, however, these experiments were unsuccessful in throwing any new light on the subject, with the result that Pictou cattle disease was declared to be con-

tagious, and the policy of slaughter and compensation above referred to brought into force. From time to time in after years the subject was investigated by Dr. William Osler, Dr. Adami, the late Dr. Wyatt Johnston and other skilled pathologists, but invariably with negative results so far at least as concerned the establishment of any definite and intelligent theory as to its true nature and causes.

ORIGIN OF THE PICTOU CATTLE DISEASE.

During the whole of this time close observers in the affected district were becoming each year more strongly convinced that ragwort and that alone was responsible. Many of these men, although receiving little encouragement to do so, took steps to eradicate the plant from their farms and to induce their neighbours to do likewise, with the result that their animals remained unaffected, while those kept on weedy farms sickened and died. These conditions were especially noticeable when, in addition to keeping the weed down in the pastures, care was taken to remove it from the hay fed during the winter. It was also observed that in years when scarcity of hay necessitated wintering cattle on straw, animals so treated seemed to be immune. In the light of our recent experiments it seems almost incredible that these and similar facts did not sooner force a full recognition of the true situation, which would have undoubtedly been the means of inaugurating a campaign of examination against the weed at a time when such a task would have been much less difficult than now.

For some years Dr. Gilruth, Chief Veterinarian and Bacteriologist to the government of New Zealand, devoted considerable attention to a peculiar hepatic cirrhosis known in that colony as Winton disease, and from which, up to 1901, and these in one locality only, horses had appeared to suffer to a greater extent than either cattle or sheep. Dr. Gilruth initiated some experiments and finally reached the conclusion, without doubt well justified, that the trouble was entirely due to the ingestion of ragwort. His experiments, while convincing, were not, owing to apparently unavoidable circumstances, conclusive, although strengthened by corroborative evidence from Cape Colony, where a like disease has been traced by Mr. W. H. Chase, government veterinarian, to the agency of another plant of the same species, Senecio Burchelli.

For the above and other apparent reasons, such as the different climatic, economic and dietetic conditions and the lack of absolute proof of the identity of Pictou cattle disease with the hepatic cirrhosis of the antipodes, his decision could not, with propriety, have been accepted by this department as the basis for a complete change of policy even had it been made public before the inauguration of our own experimental work at Antigonish, in 1903.

The latter has been very interesting and its results are convincingly corroborative of the views of those who have consistently held to the ragwort theory.

My last report contained a full account of what had been done during the year preceding October 31, 1904, together with our findings up to that date, but in order to make the case perfectly clear, I think it best to recapitulate the main points before proceeding to deal with the intervening period.

DEPARTMENTAL EXPERIMENT IN ANTIGONISH.

In October, 1903, I, with the approval of the minister, leased, for experimental purposes, a farm of 200 acres at Cloverville, county of Antigonish, Nova Scotia. This farm is, of course, situated within the ragwort area, but is further well known as one on which the disease in former years frequently made its appearance. Thirty-four cattle were purchased, four of which had been raised on the premises, the remainder being secured from districts in which there is no ragwort. Sixteen head, including the four natives, were placed in an old stable on the premises, in which, at different times, 36 cattle had died from hepatic cirrhosis. They were fed entirely on food imported from Quebec. Four were given a liberal allowance of sound hay, with a full grain

ration, four a liberal allowance of hay, with a smaller grain ration, four a liberal allowance of hay, without grain, and four limited allowance of hay only.

The other eighteen head were placed in an entirely new stable erected at a considerable distance from the old buildings. Sixteen of these were divided into quartettes and fed in exactly the same way as above mentioned, except that the hay given to them, being secured in the neighbourhood, contained a considerable quantity of ragwort.

The remaining two cattle were housed together in a separate compartment of the new stable, one being fed on chopped ragwort and the other on oat straw, a small ration of bran being given to each.

The progress of the experiments up till October 31, 1904, was described in my report of that date, but in view of the remarkable results obtained, and of all the circumstances in connection with the case, I have thought it best to make the present statement complete in itself.

Leaving out details I may state that all of the sixteen cattle kept in the old and supposedly infected stable, and fed on imported hay, which was, of course, free from ragwort remained perfectly healthy for the entire period of twenty-three months during which the experiments were in progress, although in the summer of 1905 eight died of hepatic cirrhosis in the short space of five months. Several of these animals had also been placed from time to time in close and continued contact with diseased animals, with a view to ascertaining whether or not the disease was transmissible in this way.

During the summer of 1905, also, ten of these animals were inoculated in various ways, either with blood or abdominal ascitic fluid taken from an animal affected with Pictou cattle disease to such an extent that Dr. Higgins, our pathologist, reported the cirrhotic lesions of the liver to be more extensive than in any of the others which he had examined. In spite of these severe tests, the animals continued to thrive, and when I last saw them in September, 1905, were in excellent condition, those which had been fed grain presenting a remarkably fine appearance. Thirteen of the cattle were slaughtered between October 10 and November 1 under the careful inspection of Dr. Pethick, as well as several experienced butchers, all organs being found healthy and the flesh of superior quality. Specimens from the different organs were also forwarded to the laboratory here, and pronounced by our pathologist to be absolutely free from disease. The other three animals, being pregnant cows, were allowed to live, and, according to latest reports, are in excellent condition, and in full flow of milk, after having given birth to healthy calves.

Of the sixteen animals which were kept in the new stable and fed upon local hay which contained a considerable quantity of ragwort, fifteen died of Pictou cattle disease between July 19, 1904, and August 21, 1905. I may add that to prevent the possibility of doubt as to the cause of death in these animals specimens from the internal organs of each were forwarded to Dr. Higgins, who verified the diagnosis in every case. The sixteenth animal, was slaughtered on October 13, 1905, and although to all external appearances healthy, the pathological examination of the organs showed a slight affection of the liver, and the presence of several characteristic ulcers on the lining of the true stomach.

Of the two other animals mentioned above, one of which was fed on chopped ragwort, and the other on oat straw each receiving a small allowance of bran, the former died of acute hepatic cirrhosis on July 22, 1904, while the latter remained healthy during the entire test, and, when slaughtered, on October 24, 1905, was found to be absolutely free from the slightest appearance of disease.

A calf six months old, born on the premises, was fed twice daily upon a mixture of one part of ragwort before flowering, and twenty parts of clean hay, reinforced by a daily ration of two pounds of fresh oats. This experiment, which was undertaken for the purpose of ascertaining if the weed would produce the disease at this stage of its growth, began on December 1, 1904. The calf died on May 26, 1905, post-mortem and pathological examinations revealing an advanced stage of hepatic cirrhosis. The con-

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tact and inoculation experiments were absolutely without result, it being evidently practically impossible to transmit the disease from one animal to another.

In view of the results of these practical experiments, which have been carried on with the greatest possible care and exactitude, there need, I think, be no longer any doubt as to the cause of Pictou cattle disease, and I have therefore, already recommended that it be removed at once from the list of affections dealt with under the Animal Contagious Diseases Act.

While subsidiary experiments conducted by Dr. Pethick show that some benefit undoubtedly results, especially in incipient cases, from the strychnine and iron treatment described by him in a previous report, measures of this kind are of little real value. The efforts of the local authorities and of the stock owners in the affected district should be at once directed towards the eradication of the plant which is undoubtedly the cause of the whole trouble.

Owing to the topograpical and other conditions existing in the district, it will be quite impossible to get rid of the weed by cultivation, although, on arable land, much can, of course, be achieved by this means. There is, however, much rough and partially wooded country, most of which is badly infested with ragwort, to eradicate which by any ordinary methods will be practically impossible.

It has long been noted by intelligent residents that sheep seem to be able to eat the weed with impunity, although some hold that, after a considerable period, injurious effects are produced, which, if the diet is continued, eventually cause death. It is also held that, even where the plant does not prove fatal, the mutton is rendered unmarketable by a yellow staining, which, after a time, becomes distinctly noticeable.

As to one fact there is, however, no doubt, viz.: that the keeping of sheep on land infested with ragwort is one of the most certain means of bringing about its complete eradication in a short time. This being the case, and in view of all the circumstances, I decided to inaugurate a series of experiments for the purpose of ascertaining whether or not sheep could profitably be utilized for this purpose. I, therefore, early in 1905, authorized Dr. Pethick to purchase four sheep, which were kept during the summer on four acres of very weedy pasture with the result of completely destroying the ragwort which formerly grew in profusion. So far, these animals have shown no symptoms of disease. Several other sheep were purchased a little later for the purpose of ascertaining at what stage, if any, the tissues began to exhibit the yellow stain to which reference has already been made. These animals have been slaughtered at intervals, and the flesh carefully examined, but no abnormal appearance has been so far observed.

The lease of the premises being for three years, I determined, with the permission of the minister, upon the conclusion of the experimnts with cattle, to purchase a number of sheep, with a view to securing definite information on the points mentioned above. If it can be shown that sheep eat ragwort with impunity, and that no deleterious effects are produced upon the mutton, it goes without saying that they will constitute by far the most practical and profitable agency which can be used by the residents of the affected district in ridding their farms of this dangerous pest. The country in which the weed is found is one exceedingly well adapted for sheep culture, and I am convinced that the introduction to the district of this branch of husbandry at the present time, when both wool and mutton are increasing, and likely to increase in price, will prove highly profitable.

As stated above, there is much rough pasture, while the arable land has, in many cases, been seriously impoverished by the crude methods of cultivation in vogue, and would be at once enriched and improved by the keeping thereon of a reasonable number of sheep. I, therefore, authorized the purchase, in November last, of forty sheep, which were divided into two lots, one score being fed during the winter on weedy hay, while the others were fed upon hay grown in the district, but from which all ragwort had been carefully removed.

Eight goats were also purchased, four being placed with each lot of sheep. These animals have all wintered well, and it is my intention, as soon as pasture becomes

available, to subdivide them again, keeping ten sheep and two goats of each lot on clean pasture, and a similar number on pasture badly infested with ragwort. By this means it ought to be possible to ascertain with a reasonable degree of certainty what are the actual effects of ragwort upon sheep, as well as to a certain extent also, upon goats.

It might, perhaps, be advisable to continue this experiment even longer than is proposed, but I am in hope that by the close of the present season we will be in a position to give definite and reliable advice as to the utilization of these animals in stamping out ragwort, and, with it, the long dreaded Pictou cattle disease.

Concurrently with the above an experiment is being carried on with the view of fixing even more certainly upon ragwort the responsibility of causing hepatic cirrhosis. Three healthy young cows have been, since November 1, 1905, fed on locally grown hay from which all weed has been removed, while three others are fed on similar fodder containing the ordinary quantity of ragwort usually produced in the meadows of the neighbourhood.

In January last, also, a disabled mare of little value was purchased and is being fed twice a day on hay containing a large quantity of ragwort chopped fine and carefully mixed. This experiment is controlled by feeding a horse kept at the station on hay from which the weed has been entirely removed.

Q. What amount was paid by the government in the way of compensation for slaughtering cattle?

A. I can only give you now the amount that was paid last year. Between November, 1, 1904, and October 31, 1905, ninety-four animals valued at $2,085 were slaughtered at a cost of $1,390.

Q. You cannot tell how much has been spent since the disease first made its appearance?

A. No.

Q. In what counties did it appear?

A. Pictou, Antigonish, and latterly in Prince Edward Island.

Q. How long is it since it was discovered in Prince Edward Island?

A. Three years this coming summer.

Q. And is ragwort found there?

A. Yes.

Q. That disease is found only where the weed is?

A. Only where the weed is found.

Q. But the reverse is not true?

A. That the weed is found where the disease is found?

A. Yes. The disease is not necessarily found where the weed is found?

Q. But invariably where the disease is found there is the weed?

A. Yes.

By Mr. Sproule:

Q. Is it ragweed?

A. Not ragweed but ragwort.

Q. I thought you said ragwort?

A. It is a weed which is quite common in Scotland and in England also and in almost every county it goes by a different name. The reason why it does not produce disease over there would appear to be that it does not grow in the hay meadows, it is not in the hay, and cattle do not eat it in a green state.

By Mr. Chisholm:

Q. I notice that in some sections of the country you often find lots of the weed in pastures and alongside the roadside, and yet there is no disease.

A. I have made local investigation into that circumstance, and I find that it is generally explained by the fact that the people in that particular district are careful to remove the weed from the hay which they feed to the cattle.

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By Mr. Christie:

Q. Does it grow on high land or on the flats?
A. It grows everywhere.

By Mr. Chisholm:

Q. Horses seem to be immune from the disease.

A. No, I should not think so. Horses, as you know, are more delicate feeders than cattle, and probably owe their comparative immunity to the fact that they do not eat the weed in the hay when they find it. In this connection, I may perhaps be allowed to make an explanation. It is my intention, apart altogether from the work of the Committee, to publish a full report on this disease, embodying not only my report, which is only a summary, but Dr. Pethick's report, which goes into detail. It is my intention to publish a sufficient number of those reports, apart from the Committee, to cover the territory in which the disease exists as well as to allow a sufficient distribution elsewhere.

Q. What are the symptoms of the disease?

A. Well, the symptoms vary very much at different stages of the disease. Dr. Pethick's report has thrown a good deal of light on that subject. Formerly the earlier symptoms had been entirely overlooked and the result was that only certain definite and easily observable symptoms were noted or described. The opportunity afforded by having these animals under constant observation from the time that the disease first began to make its presence felt until the fatal termination took place, has been the means of elucidating a vast amount of valuable information in regard to the symptoms. I do not think that I could very well begin at the beginning and give you the symptoms as they present themselves, as it is a work which, while I have taken a very close and active interest in it, has only been to a limited extent under my own personal observation.

By Mr. Clark:

Q. Do the animals waste away?

A. Some of them waste away, others appear to continue in fair condition until a short time before death takes place.

By Mr. Chisholm:

Q. Have you any treatment for these diseased animals?

A. I mentioned that in the statement I read. The iron and strychnine treatment was adopted by Dr. Pethick in his experiments, and some benefit undoubtedly results from it.

By Dr. McLennan:

Q. Are the symptoms to be found in Dr. Pethick's report?
A. Yes.

By Mr. Herron:

Q. I would like to ask the doctor how many cases have been treated for mange in the Northwest this last year and if that disease is being stamped out?

A. I would say that during last year 547,705 cattle were submitted to treatment, 422,805 being dipped a second time.

Q. Are you going to continue compulsory dipping?

A. I have not yet decided as to whether we will continue compulsory dipping or not. It was my intention, had the business of the House in regard to estimates and my attendance at this committee not intervened, to have been present at the annual

meeting of the Western Stock Breeders' Association, which takes place on Thursday next, in order to discuss at this season, as I have done during several past seasons, with the owners of cattle themselves the present circumstances and the best means of dealing with the situation. The facts, as they stand now are these: That whereas two years ago mange existed to a very alarming extent throughout the whole cattle country, especially the southwestern part of it, owing to the carrying out of the compulsory order of 1904 and the compulsory order of 1905, we have succeeded to a very large extent in eradicating the disease. Of course it is not completely eradicated, and during the past winter I have kept a number of cattlemen—not veterinary surgeons, but practical level-headed cow men riding the ranges in the different districts and sizing up the cattle, and wherever they detect a case of mange taking steps to have it treated at once.

The Committee then adjourned, with the understanding that Dr. Rutherford should resume his testimony at a future meeting.

Having examined the preceding transcript of my evidence, I find it correct.

J. G. RUTHERFORD,
Veterinary Director General.

HOUSE OF COMMONS,
COMMITTEE ROOM No. 62,
FRIDAY, May 11, 1906.

The Select Standing Committee on Agriculture and Colonization met here this day at 10 o'clock a.m., Mr. McKenzie, chairman, presiding.

The CHAIRMAN.—Dr. Rutherford is here to continue his evidence. He has several subjects upon which he wishes to speak.

Mr. ELSON.—As I have to leave early, I would like if you would take up the subject of sheep scab.

Dr. J. G. RUTHERFORD, Veterinary Director General, recalled.

Mr. Chairman, with your permission I will follow the same procedure as before, and read what I have written, and then I shall be glad to answer any question, if I can, that may be put to me by members.

SHEEP SCAB.

With the exception of one outbreak in Southern Alberta, and another in British Columbia, both due to imported sheep, and a few isolated cases in Ontario and Quebec, all of which had been promptly and, so far as it was possible to judge, effectively dealt with, the Dominion had been for some years practically free from sheep scab. Most of the outbreaks in Ontario had been brought to the notice of the department through the agency of the veterinary inspector who, since 1902, has been entrusted with the supervision of the animals passing through the markets at Toronto, so that no particular surprise was felt when, in November, 1904, the officer reported the existence of the disease in a consignment of sheep from Chatsworth, Ont. The matter was at once

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taken up, one of our inspectors being instructed to proceed to Chatsworth immediately and investigate the circumstances, with a view to taking such steps as might prove necessary to keep the disease under control. Before his report came to hand, however, a letter was received from the Chief of the Bureau of Animal Industry at Washington, stating that a consignment of Canadian sheep originating in Thamesville, Ont., and which arrived in Buffalo, N.Y., on November 26, were affected with scab. Investigation failed to locate the orgin of the disease in this instance, although the fact that a number of the farmers from whom the sheep in question were purchased had sold out their entire stocks was rather suspicious.

Under date of December 21, Dr. Salmon again reported the discovery at Buffalo of two consignments of scabby sheep among the bonded Canadian animals intended for exportation to Europe. These shipments, which also came from Western Ontario, were very naturally objected to by the American authorities, who intimated that they were seriously considering the necessity of requirng Canadian sheep intended for immediate slaughter, or for export, to be inspected and certified to in the same manner as sheep for breeding, grazing or feeding purposes. Realizing to the full the seriousness of the situation, I sent as many of our qualified inspectors as could be spared into the districts from which the infected animals had come, with instructions to make a thorough and careful examination of all sheep wherever found. At the same time I asked Dr. Salmon to suspend judgment until such time as it was possible to ascertain the actual conditions. The results of our investigation were somewhat discouraging, showing, as they did, that sheep scab existed in a very large number of flocks, chiefly in the county of Middlesex, although outbreaks were also discovered in the counties of Lambton, Huron, Kent, Wentworth, Lincoln, Perth, Grey, Frontenac, Lennox, York, Haldimand and Norfolk, in Ontario, as also in the county of Berthier, in Quebec. The majority of these outbreaks were traced to a common origin in a herd of breeding sheep, the disease having been conveyed through the agency of individual animals sold for use in other flocks.

In every case where the existence of disease was discovered the affected animals were placed under strict quarantine ; while, after the discovery of the infective centre above referred to, a number of flocks were placed under restrictions because of suspicion attaching to animals recently purchased by their owners, although showing no actual evidence of disease.

To remove any doubt as to the powers of inspectors and for purposes of general information, it was thought best to amend and bring up to date the regulations relative to sheep scab made under the authority of the Animal Contagious Diseases Act. This was accordingly done and the regulations in question, amended as follows, were distributed widely throughout the country :

REGULATIONS RELATING TO SHEEP SCAB.

By Order in Council, dated March 31, 1905, in virtue of 'The Animal Contagious Diseases Act, 1903.

1. No sheep which is infected with or has been exposed to sheep scab shall be permitted to run at large or to come in contact with any animal which is not so affected.

2. Every person having in his possession or keeping a sheep affected with scab shall forthwith cause such animal to be treated in a manner satisfactory to the nearest veterinary inspector.

3. Any veterinary inspector may declare to be an infected place within the meaning of 'The Animal Contagious Diseases Act, 1903,' any place or premises, or any steamship or steam or other vessel, or any railway car or other vehicle, where the contagion of scab is know or suspected to exist.

4. Every veterinary inspector shall have full power to order sheep affected or suspected of being affected with scab to be collected for inspection, and, when necessary,

to be detained, isolated or treated in accordance with the instructions of the veterinary director general.

5. The expense of and incidental to such collection, isolation and treatment shall be borne by the owners of the sheep and, if advanced by the inspector, shall, until paid, be a charge upon the said sheep, without prejudice, however to the recovery of any penalty for the infringement of these regulations or of 'The Animal Contagious Diseases Act.'

6. Inspectors are hereby authorized to order the slaughter of any sheep found to be affected with sheep scab or suspected of being so affected, subject to compensation if and when the Act so provides and to order the disposition of the carcasses of such animals.

7. Before an order is made for the payment of compensation in any of the cases aforesaid, there must be produced to the minister a satisfactory report, order for slaughter, certificate of valuation and slaughter, and certificate of cleansing and disinfection, all signed by the inspector.

8. No sheep or any part thereof, shall be removed out of an infected place without a license signed by an inspector.

9. Every yard, stable or outhouse, or other place or premises, and every wagon, cart, carriage, car or other vehicle and every vessel and every utensil or other thing infected with scab shall be thoroughly cleansed and disinfected by and at the expense of the owner or occupier in a manner satisfactory to a veterinary inspector.

J. G. RUTHERFORD,
Veterinary Director General.

Health of Animals Branch,
Department of Agriculture,
Ottawa.

REGULATIONS TO PREVENT SHIPMENTS OF AFFECTED SHEEP.

As a further precautionary measure against the spread of the disease, and with the special object of preventing the shipment of affected sheep for exportation, the following order was issued :—

DEPARTMENT OF AGRICULTURE,
OTTAWA, March, 23 1905.....

Notice is hereby given that, under the provisions of the 'Animal Contagious Diseases Act, 1903,' I do hereby declare that a contagious disease of animals known as sheep scab exists in the townships of North Dorchester, London, McGillivray, East Williams and Ekfrid, in the county of Middlesex; Warwick, Brook and Dawn, in the county of Lambton; Zone, Camden and Chatham, in the county of Kent, in the province of Ontario, in this Dominion, and that hereafter all persons are strictly forbidden to move any live sheep whatever out of the said townships, except as hereinafter provided.

The shipment of sheep from the said townships is hereby authorized under the following conditions :—

1. The shipment from the said townships of live sheep for export from Canada may be permitted, provided that each carload, or part thereof, is accompanied by a certificate of inspection, signed by one of the regularly appointed inspectors of this department, stating that the sheep comprising such carload, or part thereof, are free from disease and in every way fit for immediate slaughter. Such sheep must also be described in the way bill accompanying them as being for immediate slaughter and for no other purposes.

2. The shipment of sheep from the said townships for other purposes, to points within the Dominion of Canada, may be permitted, provided that each shipment is accompanied by a certificate of inspection signed by one of the regularly appointed

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inspectors of this department, stating that the sheep comprising the same are free from disease, and have not been in contact with affected animals.

3. Shippers must notify the nearest inspector, not less than twenty-four hours previously, of the exact time and place of the intended shipment.

GEO. F. O'HALLORAN,
Deputy Minister.

At the same time the official veterinary surgeons residing within a radius of five miles of any township in which an authentic case of sheep scab had occurred were notified to refrain from issuing the usual health certificates for sheep about to be exported to the United States.

TREATMENT FOR SHEEP SCAB.

It was, of course, impossible to do much in the way of treatment until later in the season, but with the advent of warmer weather all the affected flocks, as well as a considerable number of those held on suspicion, were subjected to repeated and systematic dipping. The mixture used for this purpose was the standard lime and sulphur dip which has for the past two seasons been employed with marked success in dealing with mange, until recently so prevalent among our western range cattle. With one or two somewhat notable exceptions, owners and breeders of sheep, realizing the extent to which their own interests were involved, worked harmoniously with our inspectors, and assisted them in every possible way, both in locating infected animals and in enforcing the regulations.

Some little difficulty was experienced in inducing the United States authorities to admit sheep from districts in which outbreaks of the disease had taken place, but this was finally overcome through the issuing of special certificates for such shipments by the regular salaried inspectors dealing with the disease.

SHEEP SCAB STAMPED OUT.

I am very glad to be able to report that the various measures outlined above proved eminently successful, and that the disease has apparently been mastered in each of the various localities where its existence was brought to light. Repeated and careful inspections of the flocks formerly infected have failed to discover the existence of the disease, except in one isolated instance where a small flock of sheep in Kent county was found to be still affected. These animals have been properly dealt with, and, although still kept under supervision are, I think, entirely free from disease.

Quite recently our inspector on Toronto market reported finding some suspicious cases among sheep sent there for sale. As a result of the investigation which followed, another small flock in the vicinity of Toronto has been placed under quarantine, although in this case only on suspicion.

With these exceptions, the country appears to be free from scab, a fact which, in view of the alarming conditions existing a year ago, is certainly very gratifying. In dealing with sheep scab, however, as with many other contagious diseases, eternal vigilance is the price of safety, and our self-congratulation should, in this instance especially, be very moderate, in view of the possibility, illustrated by this outbreak, of the distance existing wide-spread throughout closely-peopled communities among sheep owned by intelligent and experienced breeders, and under the constant observation of scores of veterinary surgeons.

As already stated elsewhere, precautions have been taken to prevent the possibility of infected sheep from Ontario reaching American markets in future, by making provision for their inspection before leaving the country.

By Mr. Elson:

Q. I understand there is only one flock under quarantine at the present time?

A. Well, there are two. There is one which while free from disease we are still keeping under observation. It consists of eleven sheep only, and it is up in the county of Kent. They are good sheep and we are just keeping them under observation. The other is near Toronto. It consists of about thirty-four sheep and they are being killed off by the butchers as rapidly as possible, it may not be scab; the inspector who quarantined them expressed very grave doubts as to its really being scab, but in view of the doubt we thought it best to keep them under control.

By Mr. Herron:

Q. Is the disease very prevalent in the large herds of Alberta?

A. No, it is not prevalent now. It was at one time very prevalent.

Q. Isn't it in Montana?

A. Yes, and in a great many states of the American Union.

PRECAUTION AGAINST SHEEP SCAB BY IMPORTATION.

Q. I suppose you are taking precautions in regard to imported sheep?

A. Yes, we hold all sheep, since within a month or two of the time I took charge, we have been holding sheep for a length of time sufficient to enable the inspectors to be absolutely certain that there is no scab among them.

By Mr. Lewis:

Q. Does it make mutton unfit for human use?

A. Not a bit. Of course, sheep suffering from scab to a serious extent rapidly run down in condition, and become so emaciated that the mutton is not fit for food, but under ordinary conditions a sheep slightly affected with scab is perfectly good for use.

Q. How is it caused?

A. By a small insect, an acarus, which lives on the skin of an infected animal, and which is very easily transmitted from one sheep to another. The sheep, of course, rub on fences, hayracks, posts, or anything they can get to rub on, and they detach small pieces of wool which very frequently contain an acarus. And other sheep come into contact——

By Mr. Derbyshire:

Q. Rub in the same place?

A. Yes.

By Mr. Elson:

Q. Sometime ago the American government would not allow our sheep to go into their country for breeding purposes. Is that removed?

A. Yes. I was able to arrange that matter even at the time by supplying certicates that the sheep had been dipped. That is overcome, but we have an inspector at Bridgeburg, where the large Buffalo trade crosses, and we have also appointed inspectors at every other point in Ontario where sheep leave the province for the United States, and all sheep are now inspected before they are allowed to leave the country, because we do not want a repetition of the experience we had last winter.

By Mr. Lewis:

Q. You are speaking of animals in the last herd being killed off for the market; would they be good?

A. Oh, yes, they would; they were intended for that purpose by the owner.

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Mr. ELSON.—I just wish to say I am exceedingly pleased with the doctor's success in stamping out the miserable disease which affected our portion of the country very much indeed, and I think the doctor deserves great credit for stamping it out.

WITNESS.—Thank you.

By Mr. Herron:

Q. Is there any inspection of the sheep that come from Washington into British Columbia at the coast?

A. Yes, we had some sheep at Victoria which were rejected on account of scab, and I think they came from Washington.

By Mr. Blain:

Q. Does the disease ever get so bad that the authorities order the killing of the animals?

A. Very seldom. That has been done on some occasions previous to my taking office. I think that was done on several occasions in reference to small bands of sheep, and I think even since I took charge on one or two occasions we have ordered the killing of sheep, prefering to pay a small sum in compensation for a small flock rather than to allow the disease to remain inactive. In winter time treatment is almost impossible.

By Mr. Wright (Renfrew):

Q. When a herd becomes infected with this disease and they are all killed off, how long would it be before it would be safe for them to bring in a new herd?

A. A good while. It would depend upon the nature of the premises. If the sheep had been kept in sheds or yards it would take longer. The season of the year also has something to do with it. Frost has a very beneficial effect in destroying the *acari* and their eggs. It is a question which is rather difficult to answer, as while the life of the insect itself apart from its host does not generally exceed a fortnight, there is no very definite knowledge as to the duration of vitality in the ovum. I suppose perhaps we might put the outside limit of possible reinfection at about four or five months.

By Mr. Blain:

Q. Have you any information as to the quantity of sheep that is being kept by the farmers of Ontario? Is it on the increase or decrease?

A. I have been collecting figures lately relative to the number in the Dominion and in the different provinces, but I do not believe that I can answer that question intelligently.

SYMPTOMS OF SCAB IN SHEEP.

By Mr. Lovell:

Q. When sheep are affected with scab how does it show itself?

A. The first thing noticeable is a tendency on the part of the sheep to rub or scratch itself. It will back up against a fence post or against any other object and rub. As the disease advances little flecks of wool become detached from the skin through the operations of the acarus, and as these drop out a little bit of fleece shows white against the somewhat darker natural colour of the inside wool.

Q. There is a little insect called the sheep tick?

A. Yes. And further as the disease goes on the sheep begins to scratch its chest with its hind feet; and then if with an ordinary magnifying glass you follow down to one of these parts where the wool is loosened from the skin you find it slightly moist, and in many cases if the acarus is active there is a secretion, partly from the

acarus itself and partly from the skin, which causes moisture, and on examining carefully, especially in a warm temperature, with a fairly powerful magnifying glass, you can detect the insect. It is quite easily detected, and of course that is, as a rule, convincing proof of the existence of the disease.

By Mr. Finlay:

Q. If the scab is left in the stable will it affect any other animal?

A. No; it is a dispensation of Providence that it requires a special variety of insect to cause the disease in the different species of domestic animals.

By Mr. Lovell:

Q. I live in Quebec. In the locality where I live nearly every farmer used to keep a flock of sheep. Our great trouble was on account of the dogs. What remedy have you for them?

A. We can hardly class them as a contagious disease, although they are a very serious drawback to sheep husbandry.

Q. I know a good many farmers in my neighbourhood who have gone out of sheep husbandry on that account.

A. I come from a sheep country myself, in the south of Scotland. We did not bother much about the law with a sheep killing dog there. He had a very short shrift.

HORSE BREEDING AND REMOUNTS.

Mr. LEWIS.—I would like to bring up that matter I spoke of when Dr. Rutherford was here before, and I move that Dr. Rutherford's essay which he issued some time ago, in reference to horse breeding and remounts for the Imperial service, be embodied in the report of his evidenc. It is a matter that is of great interest to the farmer, and should receive wide publication.

Dr. RUTHERFORD.—It has been my intention to rewrite that little brochure as soon as I am able to spare time from my more important duties, and perhaps to add a little to it. It is some four or five years since it was written, and if it would serve the same purpose, Mr. Chairman, I think I can promise that inside of the next six months we will have another issue of it, which will be available for distribution.

The CHAIRMAN.—Would you be satisfied, Mr. Lewis, to have it left over now and let it go in the second edition of Dr. Rutherford's evidence; that is what he recommends, and it will give him time to revise it.

This suggestion concurred in.

Mr. LEWIS.—It is a special document by itself. But I understand that the present edition is exhausted. I have had a number of applications for something of the same nature, and I think it will be proper to have it published by itself so that copies can be furnished to those members who wish to have them.

Dr. RUTHERFORD.—Do you not suppose it might be left to the department? Do you not think you could trust the department to do what is best in the matter?

Dr. SPROULE.—I think that Dr. Rutherford might preface his pamphlet by saying whether or not he thinks it would be feasible for the Canadian farmer to cater for that market, for that particular product, because that seems to be quite an important thing. I remember looking into this thing two years ago, in the summing up of Col. Ravenhill and some one who was here for that purpose, which was that they have taken 2,000 horses from Canada. I think that for the farmers to turn into that line of breeding for the purpose of selling 2,000 horses a year would be the height of folly, because they could not reasonably expect that one out of five of ten horses could be sold for that purpose. They might direct their attention to something more profitable than

that. The demand for horses for the South African war gave a gradual increase in the market and therefore there was a large inducement to raise horses of that kind, but that demand has now passed by and the question would be to know what, under normal conditions, the British market was, and the requirements to that purpose. It therefore seems to me absolutely necessary to embody that information in our report.

Dr. RUTHERFORD.—In this case, Mr. Chairman, I would say that that little bulletin, and anything else which I have published on the same subject has been carefully prepared with a view to preventing the creation of an impression that it was advisable for Canadian farmers to go into the business of breeding remount horses for the British or any other service. I do not think for a moment that this would be a profitable business, but, as I say, in that little bulletin, and I have said repeatedly elsewhere, we are breeding annually a very large number, an enormous number of useless nondescript little light-legged horses in Canada. Now if we are going to breed small horses, we may just as well breed good little horses as bad little horses, and the way to breed good little horses is set forth in that little pamphlet in contradistinction to the haphazard, reckless and foolish way in which thousands and thousands of bad little horses that we are annually producing are got. That is the only object of that work. I must crave sufficient indulgence from the committee to give me credit for such intelligence as will prevent me advising the Ontario or Canadian farmer generally from going into the breeding of horses for the British army as a business ; but if he is going to breed little horses he may as well breed them good as bad.

By Mr. Herron :

Q. Just a word, I have had a little experience along the lines referred to. When Col. Ravenhill was here in this country some 20 years ago, he travelled all over the Northwest Territories looking for horses suitable for the British army. I furnished eight out of a herd of 800 or 1,000 head. They took eight head from there and that was all I shipped. They had to go all over Manitoba and the Northwest to gather up one carload of horses at that time. Later, Col. Goldie came, and although the conditions have changed, just on that point I do not think it will be advisable for any man to direct his attention particularly to the breeding of horses for the British army. If we produce horses good enough to fulfil the demands of the British Army, we could get more money for them in this country. But under the conditions, and where they require a different class of horses which, I think, it is possible to breed, some suggestions in that direction would be a great advantage.

By the Chairman :

Q. Will it be sufficient to have this published in the second edition of Dr. Rutherford's evidence—will that meet the needs of the country at the present time ?

A. In connection with that I would say it is my intention to bring out a revised issue of the bulletin for general distribution.

WITNESS.—With your permission I will take up the subject mentioned by Mr. Herron the other day, that is the question of mange in cattle.

MANGE IN CATTLE.

It gives me much pleasure to be able to report a great improvement in the situation so far as concerns this troublesome malady which has existed among our range cattle to a greater or less extent for the past sixteen years. Shorty after my accession to office in 1902, I made it a point to be present at the annual meeting of the Western Stock Growers' Association which was, that year, held at Macleod. After a full discussion it was decided to leave the matter of treatment in the hands of the cattle owners with the understanding that the services of our inspectors would be available in the event of it becoming necessary to deal with the animals of negligent

or obdurate individuals. It appeared for a time that this method would be productive of good results, but the extreme prevalence of the disease during the winter of 1903-4, together with other untoward circumstances showed the necessity for some sterner and more effective policy than had yet been inaugurated.

ORDER ISSUED FOR TREATMENT OF MANGE IN CATTLE.

Realizing the importance of securing the support and co-operation of the cattle owners, I held during the spring of 1904, a series of meetings at the principal centres within the infected area. At these meetings the whole subject was discussed in detail with the result that it was finally decided to introduce a policy of compulsory and systematic dipping which should extend to all cattle owned within the somewhat extensive district where the disease was known to exist. The order thus suggested was issued on August 9, 1904, and called for the treatment, according to certain specified conditions, of all cattle within a definite area between September 1 and October 31 of that year. About the same time a comprehensive bulletin containing much information regarding mange and its treatment, together with plans and specifications for the construction of dipping vats, was prepared and distributed. The results were very gratifying. Dipping plants were constructed in almost every locality, some being provided by individual owners while others were started by groups of small ranchers who combined their forces for that purpose. In four months the number of these establishments increased from two, and these both out of repair, to 196 which, almost without exception, were found to work smoothly as well as effectively. As a matter of fact upwards of 400,000 cattle were subjected to treatment during the time that the order was in force. The great majority of the owners were only too glad to comply with its provisions although a number failed to do so, with the result that their cattle and premises were placed under strict quarantine until the advent of spring when only it became possible to subject them to treatment. The benefits of the new policy were soon fully apparent in the freedom from mange and generally improved condition of the cattle.

The following extract from the last annual report of the

WESTERN STOCK GROWERS' ASSOCIATION

which was unanimously adopted at the annual meeting of that body held at Medicine Hat on May 11, 1905, speaks for itself :—

'At the last annual meeting the principal topic of discussion was the measures that were necessary to be taken to prevent the further spread of cattle mange. It had come to be recognized that the existence of this contagious disease amongst the cattle throughout a widespread area was a potent fact that could not be disregarded any longer. Dr. Rutherford, on behalf of the Dominion Department of Agriculture, had made a few weeks previous to our last meeting a tour of the range country through which a series of meetings was held, his object being partly no doubt to educate those interested as to the serious nature of the conditions, and partly to obtain at first hand the ideas of the ranchmen themselves. The consequence was that at the annual meeting itself all were in a position to discuss the matter intelligently. The upshot of the discussion was, as most of you are aware, that the association recommended to the government that the compulsory dipping of all cattle within the affected area should be insisted upon. In due course an order in council was issued providing for this. The responsibilities thus thrown upon the stock-growers were heavy. Tanks had to be built, heating apparatus installed, sulphur purchased, extra men employed, and valuable time interfered with, while the organization necessary in connection required much consideration. Difficulties, in fact, were many and delays numerous but in spite of it all dipping was fairly general. There were a few isolated instances where no attempt was made to thoroughly carry out the regulations. As to the results there can be no two answers. It was an unqualified success. Mange has practically disappeared in those districts where the dipping was given a thorough trial.

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So satisfactory did the executive committee consider the results, that at a meeting held on March 9 last the following memorial was addressed to the Dominion government:—

'That this meeting of the executive committee of the Western Stock-growers' Association desire to put on record their satisfaction at the undoubted success resulting from the mange dipping operations of last fall, and to heartily endorse the action of Dr. Rutherford, who was instrumental in having the dipping regulations put in force. This committee is of the opinion that it is highly desirable and necessary that universal dipping should be again obligatory throughout the same district during the coming season.

'The whole country is now well equipped with dipping tanks, there being no less than 196 in existence, and future dipping operations should be simple compared with last year, when everything had to be bought and tested when all were unfamiliar with the proposition.'

Steps were at once taken to meet the wishes of the owners, and another order on lines similar to that of the previous year and differing from it only in regard to certain comparatively unimportant details was issued on July 10, 1905.

SYSTEM OF TREATMENT ENFORCED.

The same system was followed in its enforcement, the territory being divided into thirteen districts, each in charge of a qualified veterinary inspector having under his supervision a sufficient number of deputies to permit of the work of treatment being closely watched and so kept up to the standards provided for by the order. The reasons explained fully in my lost report, to the use of a standard lime and sulphur dip was again made compulsory, the only exception to this rule being at the vat of Mr. John Lineham, who obtained special authority to use crude petroleum from one of the new Alberta wells. Mr. Lineham was very anxious to have an opportunity of testing the efficacy of this oil as a cure for mange owing to the fact that certain crude oils from the Beaumont fields in Texas are being used with good effect in the treatment of mange as well as in the destruction of ticks. The oil dipping was in this instance permitted on condition that the owners assumed all risk of injury or death to the animals dipped, a very necessary precaution in view of the untoward results following the use of some kinds of crude oil in experiments conducted by the American authorities. As an additional precaution, and with the purpose of securing reliable information for our future guidance a qualified veterinary inspector was detailed to watch the dipping at Mr. Lineham's vat. His report states that, while the oil was not in any way injurious to the cattle, it failed to cure several out of a number of affected animals which were subjected to this treatment. This is regrettable as the use of oil is much less troublesome and laborious than that of the lime and sulphur preparation.

One application of the Beaumont oil above mentioned at an ordinary temperature is generally efficacious; on the other hand the lime and sulphur dip has not only to be maintained at a high temperature, but in order to effect a certain cure should be applied a second time after an interval of ten or twelve days. The latter limitation is a very serious one as may be readily seen when the difficulty and inconvenience of holding large herds for a second dipping are taken into consideration. While in Texas recently I made full inquiry as to the special oil above referred to and am now arranging to bring in a limited quantity for experimental purposes, although I fear that the combined burdens of freight and duty will render it too expensive for ordinary use.

SUCCESSFUL RESULTS FROM TREATMENT OF CATTLE MANGE.

The order of 1905 was enforced even more thoroughly and generally than that of 1904, and its results have been, in a corresponding degree, more satisfactory. Five hundred and forty-seven thousand seven hundred and five cattle were submitted to treatment, 422,805 having been dipped a second time. In a country of such extent,

however, the difficulties connected with the enforcement of an order for universal and compulsory treatment are almost insuperable, and therefore, with the object of avoiding, if possible, the necessity of repeating it this year, I retained the services of a number of experienced cattle men, who have, during the past winter, been riding the range for the purpose of detecting any incipient cases of mange and arranging with owners for their immediate isolation and treatment. These men furnish regular reports which indicate that, while the disease is not yet entirely stamped out, the results of our efforts during the past two seasons are highly satisfactory, and that by the exercise of close and careful attention it will be possible in the near future to effect its complete eradication.

I am satisfied that with the experience which they have now gained of the benefits resulting from intelligent and systematic methods of treatment, owners will never again permit their cattle to suffer from mange as they have done in the past, especially as, by the erection of dipping plants, they have now at hand the means of dealing with the disease in an economical and effective manner. Many ranchers who were at first strongly opposed to dipping are now among its most enthusiastic advocates, having found that it adds greatly to the thrift of stock, even when free from mange, by ridding them of lice and other injurious parasites. A remark frequently heard nowadays in the range country is that 'a good vat is better than a big hay stack,' and numbers of cattle men have assured me personally that they will dip their stock at least once a year whether the department orders them to do so or not.

Another great advantage resulting from the present policy is that whereas it was formerly a matter of great difficulty to secure information as to the existence of mange in a district, or the ownership of affected cattle, it is now the business of every man who has gone to the trouble and expense of treatment, to see that diseased animals are properly and promptly dealt with This very natural tendency towards self-protection is rapidly developing into a general public sentiment of the greatest value to our officers in enabling them to get early information as to the whereabouts of infected or suspected animals, as also in enforcing quarantine when such action is found necessary.

A PROTEST AGAINST BRITISH MISCONSTRUCTION OF FIGURES.

I cannot leave this subject without a reference to the very unfair manner in which the British agricultural press has attempted, during the recent controversy on the removal of the restrictions against Canadian cattle, to create a prejudice regarding our stock because of the existence in this one district of a simple, and under ordinary conditions, easily treated skin affection. Psoroptic mange of cattle is well known in Great Britain, and any one posing as an authority on live stock matters who refers to it as a malady likely to inflict serious loss or injury on the cattle industry of that country is deficient in ordinary intelligence, or what is more likely in this particular instance, common honesty. It is a disease which yields readily to simple treatment, being in fact very much more easily cured than the troublesome ringworm with which British and especially Irish cattle are so often affected. On ordinary farms and among domestic cattle, properly handled, its appearance causes to the intelligent owner neither alarm nor loss though it may induce in him, as in the affected animal, a slight, temporary sensation of annoyance. If the conditions in Alberta were similar to those in Britain or in our older provinces, the existence of cattle mange would be of very little importance either to the owners or to the authorities, but amongst thousands of semi-wild cattle ranging without restriction over hundreds of miles of open country, and depending for their sustenance during the whole year on grass alone, it is an entirely different matter and one which can only be dealt with by special measures. Opponents of Canadian cattle in Britain, both in the press and on the platform, have quoted the figures given in my last year's report of the number of cattle treated as if they referred to animals actually affected, although the facts are so apparent that a

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wayfaring man, though a fool, should be able to comprehend them. As a matter of fact not more than five per cent of those treated were showing any evidence of disease, the dipping being made compulsory and universal as a general preventive measure, having in view the possibility of future infection through unrestricted contact on the open range. Again much was made of the statement that a number of animals were dipped a second time. Although the accompanying text of the report showed that this also was universal and that at the date of writing only a certain number had undergone the second treatment, it was sought to convey the impression that these animals were so dealt with because badly affected, when in all likelihood, the most astute British protectionist would have been unable to find a single acarus in the lot.

PRECAUTIONS ENFORCED TO PREVENT SHIPMENT OF DISEASED CATTLE.

Every possible precaution is taken to prevent the shipment of any animal in the slightest degree affected. Cattle intended for export are submitted to a rigid veterinary inspection on leaving the district, are again carefully examined at Winnipeg and finally pass through the hands of our experienced and reliable staff of expert inspectors before they are permitted to leave the Dominion.

Order in Council.

DOMINION OF CANADA.

DEPARTMENT OF AGRICULTURE—HEALTH OF ANIMALS BRANCH.

Mange.

By Orders in Council dated July 10, 1905, and June 27, 1904.

Whereas the disease of mange exists among cattle throughout those portions of the territories of Assiniboia and Alberta which may be described as bounded by the international boundary, the Rocky mountains and a line drawn as follows:—

A line from the Rocky mountains along the southeastern boundary of the Stony Indian reserve, then long the northeastern boundary of the said reserve to the main line of the Canadian Pacific Railway, thence easterly along the said line of railway to the line beween ranges 5 and 6, west of the 5th meridian, thence north along that line to the line between townships 28 and 29, thence east along that line to the line of the Calgary and Edmonton Railway, thence north along the Calgary and Edmonton Railway to the line between townships 30 and 31, thence east along that line to the line between ranges 26 and 27, west of the 4th principal meridian, thence north along that line to the line between townships 34 and 35, thence east along that line to the Red Deer river, thence north along the Red Deer river to the line between townships 38 and 39, thence east along that line to the 4th principal meridian, thence south along the 4th principal meridian to the Red Deer river, thence along the Red Deer and Saskatchewan rivers to the line between ranges 7 and 8, west of the third meridian, thence south along that line to the international boundary line.

And, whereas, it is of the greatest importance to the interests of stock owners and to the preservation of a profitable market for western cattle that the policy adopted last year (1904) with a view to the eradication of the disease in question should be continued.

That after careful inquiry and due consideration it has been decided that the period between August 15 and October 31 is the most suitable and convenient for treatment with the above object.

Therefore the Governor General in Council, in virtue of the provisions of section 29, chap. II., 3 Edward VII., intituled 'An Act respecting infectious or contagious diseases affecting animals,' is pleased to order that the above described tract of land shall be and the same is hereby declared an infected place, and that all per-

sons owning, or being in charge of cattle, within the above described tract must, during the said period, dip, or otherwise treat such cattle in a manner satisfactory to the officers of the Department of Agriculture, provision being made that where it can be clearly shown to the satisfaction of the said officers that cattle, kept under fence in any well defined area or district within the said tract, are not affected with, and have not been in any way exposed to, the contagion of mange, or have been, during the present season, treated in a satisfactory manner and subsequently kept isolated from all other cattle, the veterinary director general may on the facts being reported to him, exempt such area or district from such compulsory treatment, but this provision shall in no case apply to cattle kept on the open range, or on unfenced land.

APPROVED REMEDY FOR CATTLE MANGE.

Satisfactory treatment shall consist of immersion for not less than two minutes in a solution of lime and sulphur of a strength of not less than 10 pounds of lime and 24 pounds of sulphur to 100 gallons of water prepared according to the directions of the officers of the Department of Agriculture.

When approved by the inspector in charge of the district in which the cattle to be dealt with are kept, persons owning or controlling herds of not more than 30 head may be permitted to treat their animals by hand, in which case the following preparation shall be used :—

Sulphur	2 pounds
Oil of tar	8 ounces
Raw linseed oil	1 gallon

In either case the fluid shall be applied at a temperature of not less than 105° nor more than 110° Fahrenheit, and the treatment shall be repeated after an interval of not less than ten nor more than fifteen days.

In the event of any owner failing to treat or to make satisfactory preparation for the treatment of his cattle on or before October 15, provisions of the Order in Council dated June 27, 1904, regarding compulsory treatment as quoted above, shall be enforced.

The Governor General in Council is further pleased to order that no cattle shall be removed or be allowed to move out of the hereinbefore described tract unless they are accompanied by the certificate of an inspector of the Department of Agriculture stating that they have been examined by him and found free from contagion of mange. Any such cattle, however, shall, if deemed advisable by the inspector, be detained, dipped, sprayed or otherwise treated in such manner as the veterinary director general may, from time to time prescribe.

No railway company shall accept or load any shipment of cattle at any point within the said tract except for immediate slaughter as hereinafter provided unless such shipment is accompanied by the certificate of an inspector.

At points where cattle originating in the said district are unloaded they shall be placed in special yards and such yards shall be used for no other purpose and shall be cleansed and disinfected when so ordered by an inspector.

All cars and other vehicles used for the carriage of such cattle shall be cleansed and disinfected to the satisfaction of an inspector as soon as possible after being unloaded and before being used for any other shipment.

All way bills and bills of lading accompanying shipments of cattle originating within the said tract shall have plainly written or stamped across the face thereof a notification that the said cars are to be cleansed and disinfected immediately after being unloaded.

Cattle infected with, or which have been exposed to the contagion of mange may be shipped for immediate slaughter to points within the above described tract under the following condition :—

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1. Unless loaded through special yards and chutes reserved exclusively for such shipments, all yards and chutes used by them shall be declared infected places and shall not be again used for the shipment of healthy stock until cleansed and disinfected to the satisfaction of the inspecter; they shall not be allowed to come in contact with other animals; shall be consigned direct only to such slaughter houses within the hereinbefore described tract as are provided with private yards and chutes; shall not be unloaded at any point en route and shall under no pretext whatever be removed alive from the slaughter house or the yards and premises immediately connected therewith.

2. Cars conveying such cattle shall be cleaned and disinfected to the satisfaction of an inspector immediately after being unloaded.

That the transit of cattle through the said tract is permitted subject to the following regulations:—

1. Cattle for transit by rail trough the said tract from one part of Canada to another shall, at points where unloading is necessary, be placed in yards reserved for their exclusive use, and shall not be permitted to come in contact with cattle which have originated within the said tract.

2. Cattle imported from the United States into the said tract destined for points in Canada outside thereof may, under compliance with the quarantine regulations, and with the provisions of the next preceding section thereof, be permitted to pass without unnecessary delay through the said tract direct to their destination without further restriction.

Every veterinary inspector, and every person dulty authorized by a veterinary inspector, shall have full power to order animals affected or suspected of being affected with mange to be collected for inspection and, when necessary, to be detained, isolated or treated in accordance with the instructions of the veterinary director general.

The expenses of and incidental to such collection, isolation and treatment, shall be borne by the owners of the animals, and if advanced by the inspector or other authorized person shall, until paid, be a charge upon the said animals, without prejudice, however, to the recovery of any penalty for the infringement of these regulations.

If such expenses are not paid within twenty days of the time when they have been incurred, the inspector or other duly authorized person may proceed to sell the said animals by public auction, after giving to the owner ten days' notice in writing of such intention to sell, which notice may be effectually given, where the owner is known, by delivering the same to him personally or by sending it by mail addressed to him at his last known place of residence. Where the owner is unknown, such notice may be effectually given by publication in one issue of a newspaper published or circulating in the district where such animals are detained. The proceeds of such sale shall be applied first in payment of the reasonable expenses of the collection, isolation, treatment, giving of notice and conduct of sale, and the balance, if any, shall be paid to the owner of said animals on demand. Any balance not so paid shall be remitted to the minister, and if not claimed within twelve months from the date of sale shall be paid to the credit of the Receiver General.

The amount charged for the treatment of stray cattle, or of cattle whose owners neglect or refuse to comply with the above orders, so far as they refer to treatment, shall in no case exceed twenty-five cents per animal for each dipping or application, provided that where it is necessary to collect such animals and to hold them for the second dipping and application, an additional sum of one dollar per animal may be collected.

The department assumes no responsibility for injury or loss to cattle incurred through compliance with the provisions of these orders as regards treatment.

All persons engaged in breeding, exporting, dealing in, driving or shipping cattle, and all transportation companies, are requested to co-operate with this department in enforcing the above provisions.

Outbreaks occurring outside of the area defined above will be dealt with under the general Order in Council, dated June 27, 1904.

J. G. RUTHERFORD,
Veterinary Director General.

Health of Animals Branch,
Department of Agriculture,
Ottawa, July 11, 1905.

Mr. HERRON.—I suppose you are aware of the fact that there is still a marked difference of opinion on this question of compulsory dipping. A great many people are opposed to it. There are parts in that district where the disease is not at all felt, and I have seen some cases where it seems to be a great hardship, such as the case of a man who may have two or hundred or three hundred head of cattle which have not been out of his own field, in fact were never out of his premises, and there was no disease or symptoms or signs of disease in that herd. It seems hard that he should be compelled to go to the great trouble and expense under compulsory dipping. I believe there are cases of that kind in the country. With reference to the treatment with that oil, I may say to the doctor that I have used some of that myself, and I believe it was as good as the dipping preparation lime and sulphur. With reference to the lime and suphur, I have heard it said in my country, one man had a drove of steers near Macleod, and it was said that they were dipped so often that when a steer would see him coming with a pail in his hand he would lie down to be treated. I do not know that it was always an effective cure. I am just now referring, however, to the difference of opinion among stockmen, and the opinion of a good many men in the country is against compulsory dipping.

Dr. RUTHERFORD.—In regard to what Mr. Herron has said, I may say that I can understand the position he takes, because during each of the seasons that the compulsory dipping order has been in force we have had a very large number of protests from people who objected to being compelled to dip their cattle. Owing to the difficulty and trouble of enforcing the order we are going to, if possible, avoid putting it in force this year. I may say that while of course I would not for a moment contradict Mr. Herron, I do not think there are many cases on record such as he describes where a man was compelled to dip when he had kept his cattle entirely under fence and they were free from disease. There was a special provision in the orders issued that 'where it can be shown to the satisfaction of the said officers that cattle, kept under fence in any well defined area or districts within the said tract, are not affected with, and have not been in any way exposed to, the contagion of mange, or have been, during the present season, treated in a satisfactory manner and subsequently kept isolated from all other cattle, the veterinary director general may, on the facts being reported to him, exempt such area or districts from such compulsory treatment, but this provision shall in no case apply to cattle kept on the open range or on unfenced land.'

Now, we have had in each season, in each year that we have put the order in force, a very large number of applications for exemption, and a great many statements made which on careful inquiry we found to be at least unreliable. A fence, an ordinary wire fence, is not a very good protection against mange, because animals rubbing on one side of it will easily infect animals on the other side of it. Then the fences get broken and cattle get in and cattle get out, and it is a hard thing in that country to find a man who can furnish absolute and satisfactory proof that his cattle have not been in contact with other cattle. Then again, there is this point, which constitutes the principal difficulty we have to deal with, namely, that the disease does not give any evidence of its existence during the summer months, as a rule, even during the time we are dipping, August, September and October. The number of actual cases of mange is very small, but as Mr. Herron knows, if these cattle are allowed to go on into winter without being dipped, along in January

or February or March the disease develops just at the time when the animal needs all the flesh it can hold, and we have a very serious condition of affairs, such as that which took place in the winter of 1903-4.

Of course I understand, and Mr. Herron of course knows that I understand, that compulsory measures are never popular. You cannot make for popularity whenever you tell a man that he has got to do a certain thing, particularly a western man. He objects to dipping his cattle unless he wants to. We have had to exercise a good deal of judgment and policy even to get our work advanced as far as we have now. I am not at all conceited about our success in the west, but I feel we have made some progress in the direction of suppressing mange.

VALUE OF NORTHWEST CATTLE EXPORT.

We are not out of the woods yet, but we must bear in mind, that if we do not stamp out this disease in Canada, we are running the very serious risk of losing our enormous export cattle trade. That is a trade which amounts now to from 150,000 to 200,000 head per annum. Of that number the west last year contributed, I think, some 52,000 head; the year before only some 30,000, and the year before that some 32,000 or 33,000. Now, this simply means that it is out of the question that that large export trade should be lost, or even that its loss should be risked by permitting disease to continue to exist in the range country. It means that the people out there either have to adopt some systematic universal system of treating these animals or they will have to be shut out and compelled to eat all their own cattle, which would be a very serious matter indeed for western stock owners. We have done our best under very difficult circumstances; it has not been by any means a picnic. It has not been a very pleasant experience. My mail from the time the compulsory order is announced each year until almost the same date next year is full of objections and of protests, and of trouble from the different small owners in the west, and some large owners too who unfortunately object to having their cattle summarily dealt with. But we have kept on, we have not backed down, we have fought our way so far, and I am pleased to say we have had the approval of the Western Stock Growers' Association and of almost all the other organizations of similar character in the west. It is not a pleasant thing, but we are doing the best we can with it.

By Mr. Kennedy:

Q. Has that dipping process ever been explained to the committee, the method and what it means? I do not exactly understand it. I can understand sheep dipping, but cattle dipping is different?

A. I have a photograph here which, with your permission, I will pass around. It will tell you more about it than I could with a half hour's talk.

Mr. HERRON.—The department will require quite a staff of men to deal with this question further if they continue the treatment of cattle and take proper precautions against the spread of mange, or rather to stamp mange out. With thoroughly qualified veterinaries in charge of the district and a staff of practical men, I think it would be sufficient if they would examine suspicious cases, or places where they hear that there is likely to be mange, or follow the round ups in that country, or something of that kind, and if the stock treated shows any signs of mange, that would be sufficient for the veterinary. I think it is the general opinion of that country now that that would be sufficient for the eradication of mange in that country. As the doctor has said, it is important for the Northwest and for the rest of Canada that this mange should be dealt with in our country, and stamped out, because I see it would be very serious if the stockmen in the west would do anything to stop the export of 150,000 head of cattle from the older provinces. This mange question is dealt with from the standpoint of expense not to the Dominion government, but to the owners of cattle in our country, with the assistance of the staff and the remedies supplied by the department.

Dr. RUTHERFORD.—In reply to Mr. Herron, I would say that it had been my desire to be present at the meeting which was held yesterday in Macleod, the annual meeting of the Stock Grower's Association, but owing to pressure of work here I was prevented from going west. I have, however, written to the secretary of the association, laying my view of the case before him, and asking for a resolution or series of resolutions to be passed by that association for my guidance, or at least to assist me in defining a policy for the coming season. As Mr. Herron knows, it is not a matter that one can decide off-hand. It is a very serious proposition, which involves, as he says, an enormous expense to the owners of cattle, a very great deal of work and trouble, and some risk, and a man occupying my position has to be exceedingly careful and to use great discretion before committing the owners and the department to the carrying out of so serious a policy as that involved in the compulsory mange dipping. I do not wish this morning to express an opinion or to make any statement as to what the policy will be, but it will be the very best that I can figure out in the best interests of the people.

By Mr. Martin (Wellington):

Q. About how much does it cost per head to dip the cattle?

A. It varies very greatly. Some people claim they can dip for two cents per head. We have a tariff which was decided upon by the ranchers themselves in the various meetings for the dipping of cattle of other people, stray cattle or the cattle of recalcitrant owners, or the cattle of owners who have not dipping vats of their own. A rancher who owns a vat is empowered to make a charge of twenty-five cents a head for each dip—that is, fifty cents—and where it is necessary to hold the animals for the second dipping to charge one dollar extra, making $1.50. Speaking of that, I cannot refrain from relating an incident illustrating the conditions in that country in connection with the carrying out of the compulsory dipping order of 1904. A friend of mine found 24 four-year-old steers which he had not seen since they were calves. The cattle were taken up in each district and dipped, and you must understand stray cattle were dipped also. These cattle were found at a considerable distance from this man's range, they were dipped, and he was billed for $1.50 a head for the 24 cattle. He was very angry, and thought some mistake had been made. He went down to object and say they were not his cattle. When he got there he found 24 four-year-old steers that he had not seen since they were calves. He was very glad to get them at $1.50 apiece. That will give you an idea of the conditions where it is possible to have cattle out for four years without seeing them.

By the Chairman:

Q. I would like to ask the doctor if there is any mange in Manitoba or Saskatchewan. The Ontario farmers are beginning to look there for stockers, and it would be a live question for us to be certain we are not getting mange into our herds?

A. There is practically no mange in Manitoba. We have had one or two little isolated outbreaks in cattle brought down. There is no mange in northern Saskatchewan and practically none in northern Alberta. There is mange in southern Alberta, a good deal of it, but it is mostly confined to the cattle on the open range. Cattle from the districts which are thickly settled are as a general rule free from mange. The only outbreaks of mange which we have had in Ontario have been from northwestern cattle which had been bought for fattening purposes, and I think we have found these traceable in every case to cattle brought from the mange infected area.

By Mr. Martin (Wellington):

Q. Are these vats built by the government?

A. No, they are built by the owners of the cattle, either singly or in company. We have a few dipping vats at the different quarantine stations along the boundary line. These, of course, are constructed by the department.

By the Chairman:

Q. If there is nothing further on this subject the doctor might proceed with his next subject. You have something to say on hog cholera?

A. I have hog cholera and tuberculosis.

The CHAIRMAN.—Which would the committee prefer him to take up first?

SOME HONOURABLE MEMBERS.—Tuberculosis.

The WITNESS.—Very well, I will take up tuberculosis first.

TUBERCULOSIS.

No change has so far been made in the policy of the department regarding tuberculosis. Cattle imported from the United States for breeding purposes or milk production, if unaccompanied by a satisfactory tuberculin test chart signed by an officer of the United States Bureau of Animal Industry are placed in quarantine and tested. The same rule is applied to cattle of similar classes imported from Mexico. Cattle of any kind coming from other countries are tested in quarantine. The animals comprising a few herds which are placed entirely under the control and supervision of our officers are also tested by and at the expense of the department. With these exceptions no testing with tuberculin is now undertaken officially, although it is supplied free to qualified veterinarians when employed by owners of cattle, on condition that the results of all tests made by them are sent in to the department on forms supplied for that purpose.

In a considerable number of instances advantage has been taken of this offer, as may be seen from the fact that in the seventeen months which have elapsed since the date of my last report, 7,721 doses of tuberculin have been issued from the biological laboratory.

It may be said, and with some show of reason, that the policy at present pursued by the department in regard to this insidious and destructive disease is less active than it should be. While admitting that appearance would so indicate, I would say that my reason for counselling the policy of comparative inertia now being followed, is that so far no satisfactory and intelligent method of dealing with bovine tuberculosis has been evolved, and that I consider it better to await the results of the investigations now being conducted by scientists in different parts of the world, rather than to inaugurate a campaign along any of the various lines hitherto adopted, none of which have proved successful, and almost all of which have been abandoned after a more or less severe trial of public patience and a corresponding drain on public and private purses.

Since tuberculin was first introduced many communities have passed legislation regarding its use, which after being enforced for a longer or shorter period and causing more or less irritation and consequent agitation, has in most cases been repealed, having entirely failed in accomplishing the object desired. It was thought for many years, and by some men who should have known better, that if a herd of cattle was tested, the reactors destroyed and the premises disinfected, the disease was stamped out, the owner being left; therefore, to follow his own courses. As I have maintained in previous reports, such a theory is absolutely wrong and untenable. Repeated experiments have shown that from 8 to 50 days may elapse after infection before it is possible to obtain from the animal a reaction to tuberculin. This being the case, it goes without saying that frequent and repeated tests are necessary before it is safe to pronounce free from tuberculosis any herd which has been once infected. For example, in a herd of 100 cattle, 25 are found to react to the first test. In such a case the theory

was that the 75 which did not react were perfectly sound and safe. It must be remembered, however, that these 75 cattle have been living, and that in probably very close contact with the 25 reactors. Under these circumstances it is almost certain that a second test in three months will bring to light a number of cases of tuberculosis which had not developed at the time of the first test to a sufficient extent to produce a reaction. We will say, for the sake of illustration, that these cases are ten in number and that the remaining 65 still fail to react. Again, however, these 65 animals have been in contact with the 10 now shown to be diseased, and further tests will be required before the herd can be finally declared healthy. The same thing applies in the case of new cattle purchased to fill the places of those slaughtered or for other reasons. A test priod to purchase while to some extent a safe guard, does not by any means constitute a guarantee of soundness. Even where the sharp practices followed by some sellers have not been brought into play, the newly purchased animal, if coming from an infected herd, must be looked upon with suspicion until its freedom from tuberculosis has been proved by a second test three months after purchase. This being the case it is necessary, in order to prevent the introduction of infection, to isolate carefully all newly purchased cattle during the period of probation. No one is more firmly convinced than myself of the value of tuberculin as a diagnostic agent, but it is subject to the limitation mentioned above, as well as to several others, among which may be mentioned the fraudulent methods adopted by many owners to prevent the occurrence of a typical reaction.

The old plan of injecting tuberculin a few days before the time fixed for the test, and thus nullifying the work of the inspecting veterinarian, was troublesome and in some cases expensive. It has also now largely lost its value as an agency for cheating through the discovery made by Professor Valle, of Alfort, that a reaction is actually obtainable even where tuberculin has been used only a short time previous, provided the taking of temperatures is commenced two hours after injection and continued until the usual time. Its place has, however, been taken by the much more cunning and not less disreputable practice of administering one or other of the coal tar antipyretics combined, as a rule, for safety's sake, with other drugs, to such animals as are known to be tuberculous, or which begin to show a rise in temperature when undergoing the test. It is scarcely possible to deceive an experienced and wide-awake inspector by this scheme, but comparatively easy to hoodwink the veterinarian who depends entirely on his thermometer and pays no attention to the clinical symptoms which invariably accompany and accentuate a marked reaction to tuberculin.

While believing firmly in tuberculin when honestly used as a diagnostic agent and for specific and definite purposes, I maintain that in consideration of the foregoing facts and of the many other difficulties to be encountered, it is better to wait until we are sure of achieving reasonable results and so making some progress in the eradication of tuberculosis, before we decide upon any policy which would involve universal or promiscuous testing. Meanwhile, no effort should be spared to induce owners of cattle to adopt every possible and reasonable means of combatting the disease by practical common sense methods.

The Bang system which is followed by Senator Edwards and several of our large breeders, and which has frequently been fully described, has much to recommend it and should be more generally adopted than it is.

THE TRUE REMEDY FOR ERADICATION OF TUBERCULOSIS.

Within the reach of every man, however, and at the lowest possible cost, there lies the best and most effective agent yet discovered for the eradication of tuberculosis. Of infinitely greater value than tuberculin and much more easy of adminstration is a plentiful supply of fresh air. If there is one matter to-day in which veterinarians are behind the age, it is that of failing to insist at all times, in season

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and out of season, on the importance to live stock of thorough and effective stable ventilation. Having before us the object lesson afforded by the medical profession and the marvellous results which its members are achieving by open-air treatment, not only helping, but actually curing advanced cases of tuberculosis, to say nothing of checking the disease, as is now daily done, in its early stages, it is nothing short of disgraceful that we are yearly permittitng thousands of valuable animals to become infected owing to the unsanitary conditions under which their owners insist on keeping them. Of the truth of this contention, which is, perhaps, at first sight, rather sweeping, there is no lack of proof. In northern countries where cattle are generally closely housed, and where a proper system of ventilation is the exception and not the rule, we almost invariably find bovine tuberculosis rampant. In milder climates where animals have free access to fresh air, as for instance among the Hereford cattle in England, it is a rare thing to find a case of that disease. On the ranges tuberculosis is unknown, except where it has been introduced by some pampered stable-bred individual, and even such a one is more likely to recover than to die, provided the malady is not too far advanced and the first winter can be endured. To put the case plainly, stockmen are breeding tuberculosis a great deal faster through neglect of his important subject of ventilation than it would ever be possible to stamp it out by the promiscuous use of tuberculin and the slaughter of diseased animals.

While holding these views I am keeping close watch on the work of Von Behring, McFadyean, Thomassen, Marmoreck and others in Europe, and Pearson, of Pennsylvania, who are devoting themselves to the task of finding some new and more effective method of dealing with the disease than has yet been made available. So far, in spite of all reports to the contrary, nothing has been achieved by their researches which would, in my opinion, warrant a change in our present attitude.

Meanwhile I am, with the approval of the Minister, carrying on two experiments which, though conducted at a very trifling cost, will, I hope, be productive of results of considerable value to the stock owning public.

A VENTILATION TEST.

The first, which is being managed by J. H. Grisdale, Agriculturist at the Central Experimenal Farm, consists in the housing of a number of healthy cattle under conditions which, while affording absolute protection from draughts, ensure at all times a plentiful supply of pure air. The object sought is to determine whether or not the high temperature generally insisted on by dairymen and cattle feeders has the effect, with which it is usually credited, of maintaining a higher yield of milk in cows and a more rapid laying on of flesh in fattening stock than is the case when warmth is to some extent sacrificed in the interests of ventilation. Owing to the exceptional mildness of the season the conditions have been less favourable to the success of the experiment as a demonstration than would have been the case in a normal Canadian winter. As there is practically no outlay involved in this test, I hope that it will be possible to continue it for several successive years, as the point at issue is one of vital importance to the dairymen and feeders of the northern zone.

AN OPEN AIR TREATMENT.

The second experiment now in progress consists in the application of the principles of the open air treatment to a number of cattle known to be affected with tuberculosis, although not in an advanced stage, with a view to ascertaining to what extent it may be possible to cure the malady, or, at least, to check its progress. The opportunity to initiate this experiment at a slight expense was furnished by the reaction to tuberculin of a considerable number of the cattle kept on the experimental farm at Nappan, Nova Scotia, when tested in October last. As these animals, being the property of a public institution, would, under ordinary circumstances, have been destroyed, I thought

the opportunity for acquiring knowledge in this way too valuable to be neglected, and they were, therefore, at my request, and with the full approval of the minister, transferred to this branch by the director of experimental farms. All those showing evidence of breaking down were killed, 40 head in all being retained for experimental purposes. Of these, 28 have reacted to tuberculin, while the remaining 12 are to all appearances free from disease. All, however, are being kept together, it being desired, among other things, to obtain information as to the probability of infection by contact under open air conditions. The animals have passed the winter in a yard at Nappan, their only protection from wind and weather being a shed open at all times. They do not appear to have suffered from exposure, the only death reported having occurred within a few hours of dehorning, an operation which was considered advisable in order to prevent the animals injuring and annoying each other.

It is my intention, as soon as I can secure suitable premises, to bring these animals to the vicinity of Ottawa, where the opportunities for close observation will be much greater and the results generally more satisfactory.

The highest medical authorities are now-a-days advising, and with the very best results, our modern hothouse humanity to get 'closer to nature' in every possible way. The advantages of adopting a similar policy in the handling and housing of domestic animals are too apparent to admit of discussion. Nature has furnished our animal friends with every conceivable requisite for protection against ordinary climatic conditions, and most of the diseases and disabilities to which they are subject have been caused by, and owe their continuance to, the irrational, artificial conditions imposed upon them by well meaning, but ignorant, or rather unthinking owners and attendants.

ANIMAL VITAL STATISTICS.

From November 1, 1904, to October 31, 1905, 890 cattle were tested for export, 48 of which reacted, 8 were classed as suspicious, and 834 successfully withstood the test. 167 cattle were tested on being imported into Canada, 8 of which reacted and 159 proved healthy. 820 cattle were tested by private practitioners with tuberculin supplied by this department, 103 of which reacted, 17 were classed as suspicious and 700 proved to be healthy.

All reacting animals were permanently earmarked by a veterinary inspector.

November 1, 1905—March 31, 1906. 622 cattle were tested for export, 20 of which reacted, and 15 were classed as suspicious, 587 thus successfully withstanding the test. 10 cattle were tested on being imported into Canada, of which only 1 reacted, the other 9 proving healthy. 420 cattle were tested throughout the Dominion by private practitioners with the tuberculin supplied by the department, 38 of which reacted, 15 were classed as suspicious, and 367 proved healthy.

With regard to this general testing, it must be borne in mind that, in most, if not all, cases, the existence of tuberculosis is suspected in a herd before tuberculin is applied for, thus the proportion of reactors is naturally much larger than would be obtained from indiscriminate testing.

By Mr. Lewis :

Q. You were speaking about ventilation of stables. Can you give us any information about that ?

A. I have a system of my own which is the system that is adopted in the stable I referred to out at the farm. It is also being adopted in all buildings that are being put up in connection with my branch. It is a system which I discovered myself a number of years ago. I have used it at my own stables, and it has one great advantage over every other system I have ever known, namely, that it works.

APPENDIX No. 2

Q. Can you describe it ? Can any one use it ?

A. It is not patented at all, I am only too glad to let any one use it that wants to. I could describe it, but I would rather not because it is difficult to do so, offhand.

By Mr. Martin (Wellington):

Q. Any on ecan see it there at the farm ?

A. Yes, it is in use in two stables and in the buildings at the laboratory there. I would rather not attempt to describe it offhand, because the description would be indefinite and some important points might be omitted or insufficiently brought out.

By Mr. Lewis :

Q. Could you attach a description of it to this report ?

A. Yes, I might do that.

By Mr. Martin (Wellington):

Q. Is it very expensive ?

A. No, it is very cheap.

Q. It might be put in a barn that is already erected ?

A. Yes.

By Mr. Wright (Muskoka):

Q. Can you give us a cut of it in your report ?

A. I can if you are not in a hurry for it. Just to give an illustration of the difficulty of describing it offhand, I might mention that a gentleman at the Agricultural College wrote about this system of mine a number of years ago. He wrote to me asking for information, and I wrote giving him a very full and accurate description of it, and he published an account of it in the *Farming World,* accompanied by cuts which he himself had made in which everything was shown upside down, and I do not think the system as he published it would ventilate anything.

Q. It is past the experimental stage now, it is ?

A. Yes, I used it in my own stables for 12 years, and wherever it has been used it has been successful.

By Mr. Chisholm (Antigonish):

Q. Has it been very generally used ?

A. I have never advertised it, it has been a sort of gradual process.

Q. The persons using it at the experimental farm can make a success of it, you know whether they have or not ?

A. I might say that Mr. Grisdale at the experimental farm, when he first saw it, did not think it was elaborate enough ; it is painfully simple, but now Mr. Grisdale has come to the conclusion that it is all right and, I think, testified to that effect before this committee last year.

Q. Is it a system of natural draught or forced draught ?

A. It is absolutely natural.

By Mr. Wright (Muskoka):

Q. Can this be safely used in ordinary stables ? I suppose it will have some effect upon the temperature at which the stable is kept, that is ordinary stables. Would it not affect them by lowering the temperature in an ordinary farm building to a sufficient extent to make it undesirable.

A. I suppose there is nothing for it but to go into the question. The ideas of the ordinary farmer and stockholder of the proper temperature for a stable require, in my opinion, very considerable revision. A great many dairymen and a great many cattle feeders, think that unless they can keep the stable to 60° or 70° in any weather they are going to be heavy losers, the dairymen in the flow of milk obtained and the cattle men in the flesh forming proclivities of the animal. Well, this room here is a very large and a very lofty room, and it is very much better constructed than the ordinary stable ; that is to say there are fewer ordinary apertures, unintentional apertures, than would be found in the average stable. I would like to ask any member of this committee, Mr. Chairman, what sort of an atmosphere he would be breathing if he formed one of a sufficient number of men put into this room on a winter day when the thermometer was in the neighbourhood of zero, without artificial heat of any kind, to maintain the temperature of this room at 70°. Now, that is exactly what is happening in the ordinary stable. It is nothing unusual when the thermometer is away below zero, to find stables without any artificial heat whatever, at a temperature of 70°. The animals in that stable are breathing and rebreathing an atmosphere absolutely indescriable. That is what is going on, and the object of that experiment to which I have already referred, is to show that it is possible profitably to keep the animals free from exposure to draughts, but at the same time with a plentiful supply of pure air. The system which I have discovered is practically automatic, it works exactly on the principle of a stove, taking into consideration that the source of the heat consists of the animal emanations only and the first necessity is a chimney. As the air in the stable becomes foul it becomes warm and it ascends to the ceiling where it is taken off by the chimney. Now, the ordinary architect who has been employed in the construction of dwelling houses will tell you that foul air is heavier than pure air and that, to ventilate properly, the latter should be taken off at the floor. He is quite right, foul air is heavier than pure air in that case, because you have artificial heat, and the foul air will fall to the floor if a plentiful supply of pure warm air is introduced into the room. But in the stable you have no artificial heat and consequently as the air gets foul it gets warm and rises, and it passes out through this chimney. A partial vacuum is created in the stable by the air going out, and nature, as we all know, abhors a vacuum. If you have no other opening in the stable as is to often the case a certain amount of hot air will pass out through the ventilator, and then for a certain time, there will be a beating down of cold air to take its place below which creates a disagreeable down draught not only unhealthy but opposed to the sound principle of ventilation, that the outlet must be always an outlet, and an inlet must always be an inlet. If at any time an inlet becomes an outlet or an outlet becomes an inlet, your ventilation is out of order and it is not to be relied on. Having our flow of foul air started through the chimney we want to provide a means to bring in pure air to take its place. That is done by a series of what might be termed 'U' pipes, in the old country these pipes are used extensively for various purposes but they are hard to get in this country, and their place is very well taken by a wooden box. We will suppose by way of illustration that A, is the wall of the stable and B the foundation, C is the floor level, D is the box that goes down, from the outside, and comes up on the inside, the deeper the better because there is less tendency to be influenced by wind pressure, therefore less tendency to draught and the air is slightly warmed as it goes through the soil. On the outside, in this country where the snow has to be reckoned with, it is often advisable to bring the box up against the wall, putting a little board on the top, and leaving the inside open, E at a certain distance up, so that the air can get between the building and the box. As the foul air is taken off from the inside by the chimney, the pure air is sucked in through these pipes which should, in their combined diameter, be a little larger than that of the chimney, so as to make the process more gradual at the intakes than it is at the outlet. By this method the air is sucked in, there are no draughts, the wind has no effect and the process is really automatic. The opening in the floor is protected by an iron grating which may be countersunk and left movable to admit of cleansing

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the pipe. We will have the objection taken by some gentlemen that you may reduce the temperature of the stable too much. Well, that is quite true in very cold weather, and that worried me for a while at first, until I struck the idea of a back damper in the stove pipe and I put a damper in my chimney, controlled by cords brought down at the side. Suppose you have a stable with 40 animals in it, and you want to turn out 35 of them, and leave five in. With only five animals you do not require the air in the stable to be changed with anything like the same rapidity as you would for forty animals. You then partially close your damper, and the air does not go out so fast, and it does not come in so fast. If you are leaving one animal in the stable and it is intended for forty, it does not require any particular change of air, and you can close the damper altogether, and the remarkable thing and the best feature about this system of ventilation is that whenever you close the damper, you automatically stop the intakes. That is exactly on the same principle as the kitchen stove, when you turn back the damper in the pipe you will find there is no draught in front at all. You can tell in a moment when the damper is closed, you can hold your hand over the intakes, and find that they are closed also. I have seen myself in the United States, in England, and in Scotland especially, where people are generally more intelligent than elsewhere in regard to such matters, I have seen long rows of little doors, moved by a lever which it took a strong man to manipulate, in order to shut off intakes below. The builder never thought of simply shutting the one above, but that is all that is required to stop this system of ventilation from working.

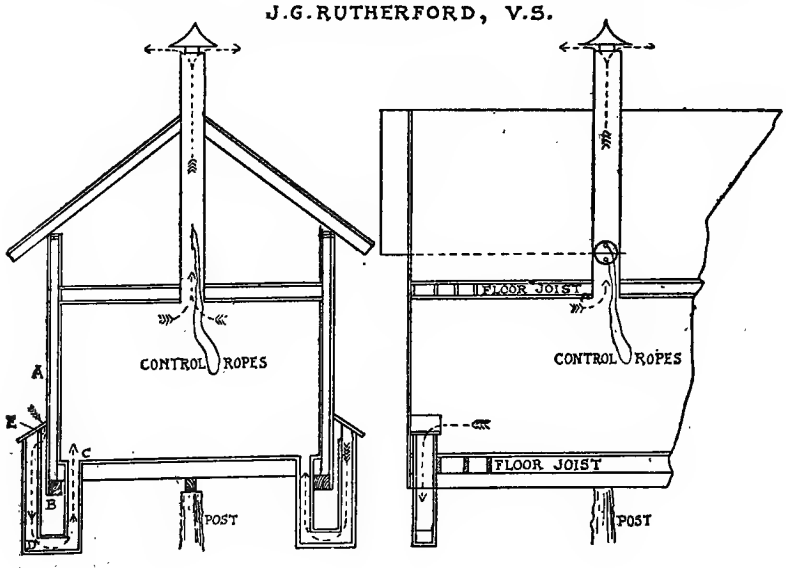
A SYSTEM OF VENTILATION

FOR STABLES

DESIGNED AND PLACED IN PRACTICAL OPERATION IN 1892

BY

J.G.RUTHERFORD, V.S.



By Mr. Martin:

Q. Do you not find the draught fill up with hoar frost?

A. In the chimney, yes, that is to be avoided by putting a galvanized pipe inside a wooden box, and packing in around it with straw or chaff or something of that nature so as to prevent the cold striking the metal, but in very severe weather it will affect your pipe to some extent, you cannot get over it altogether.

By Mr. Wright:

Q. Would you object to putting that system of ventilation in the Commons chamber; it will be nice to have it here?

Mr. WALSH.—I think this is one of the most important things that we have had before us, especially as Dr. Rutherford has taken up the question of tuberculosis. I agree very strongly with him, from practical experience, that one of the means of keeping tuberculosis from our animals is to look after the ventilation of the stables. I have been talking for some time at institute meetings of the want of ventilation and more light. There is not enough light and air in the stables, this is a simple system of ventilation and is a good one. People have adopted in some cases these very complicated systems, but they are hard to install and I think that this is what they want. I move that Dr. Rutherford's description of the ventilation system be attached to his article on tuberculosis.

By Mr. Martin (Wellington):

Q. I feel that this whole system of ventilation will be a failure, because the frost will interfere. I have tried that several times. Have you had any trouble in getting down under the foundations to bring in the air. Where the foundations are deep it is rather a difficult matter to get under it?

A. Where the foundations are too deep you can cut right through them.

By Mr. Wright:

Q. Does the chimney go through the roof or does it pass out at the side?

A. The object of running it out through the roof is to have it like a chimney, so that nothing can interfere with the draught. If you run it out through the sides, when the wind is in that quarter, if it is run straight out, the wind will blow down, and it will shut off the ventilation at once. Whenever the air begins to come down the chimney, it is just like a smoking fireplace, it stops ventilation. Then again if you run it out and up the side of the building you know that the ordinary chimney will smoke when the wind is in a certain direction. This must be exactly like a chimney, I use the word chimney advisedly, it must have as good a draught as a chimney, so that it will always draw up.

By Mr. Lewis:

Q. Is there any difference between a stone and frame stable in regard to tuberculosis?

A. I do not think there is, provided there is a plentiful supply of pure air and the stable is kept dry.

Q. There is an idea that a stone stable is damp?

A. So it is, as a rule, and for the same reason that I have just mentioned, you will always have it a damp and stale and foul place unless you have a plentiful supply of pure air coming in to take the place of the foul air going out. If you have a stable closed up so that the atmosphere becomes moist and damp it is a misnomer to call it air. Under these conditions disease flourishes, but when stables are dry and light, there is very little of it. When I first put that system in my 50-foot stable I had my intakes at one end only, I had none at the other end, the chimney being in the centre. The end without intakes was damp all the time, the air would condense; of course, in Manitoba where I lived it is exceedingly cold in winter.

Q. But it was not damp where the intake was?

A. No, and as soon as I put in intakes at the other end of the stable it dried at once and I had no further trouble.

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By Mr. Martin (Wellington):

Q. You had no trouble with ventilation of your chimney ?

A. When it got down to forty or forty-five degrees below zero and there were few animals in the stable, there would be a tendency, on the part of the men especially, to pull the damper down pretty close, and sometimes under those conditions we would have a good deal of condensation in the chimney.

By Mr. Wright (Muskoka):

Q. What size would you make the chimney ?

A. It depends entirely upon the size of the stable and the air-space allowed to each animal. One on the farm is, I think, about two feet in diameter, we have some twenty animals in the stable.

By Mr. Schell (Glengarry):

Q. You could indicate what percentage of size in the chimney is necessary in comparison with the size of the building ?

A. The size naturally varies with the air space allowed for each animal in a stable. As I told you, Mr. Chairman, I did not want to address the committee on this subject because I had not prepared anything, and have no figures with me, I am only telling you my views of it, and what I have myself seen.

Q. There is one point, the question of the 'U' pipes, which I think is the most important of the whole thing so far as the admitting of pure air and preventing draught is concerned as compared with straight pipes ?

A. It is important, but the other is equally important for this reason : When I first adopted this system I got the idea of the 'U' pipes from an Englishman who was out in this country about 1890, he was a very intelligent man named Wood, who came out as a farmer's delegate. It was he who gave me the idea of the 'U' pipes ; in the old country stables, in all horse stables, and in a great many cattle stables, the horses stand against the wall, and the doors are in the wall behind them, and he told me that he had his 'U' pipes behind the horses under the wall, and his outlets consisting of drain tile, set in the wall, one above each horse's head. I said : 'Which way does your stable face ?' and he replied, 'to the west,' if I recollect aright, and I said to him : 'What about the ventilation when the wind is in the west or northwest.' He said : 'It goes on strike then, I cannot do anything with it.' My reply was, 'I thought so,' and when I began to put up my stable on that idea I got partly over that difficulty by having adjustable louvres. I had a shaft 8 feet by 4 feet, lined with galvanized iron, and at the top I put in adjustable louvres which I could close. There was one on the north side and the other on the south. When the wind was in the north I could open the south louvre, and it worked all right, as long as the wind did not change, but if, say during the night the wind veered so that it struck on the south side of the building, when the north louvre was closed and the south louvre was open, the ventilation stopped dead, as I could tell the moment I went into the stable in the morning without any assistance from my eyes.

Q. And the animals could tell too ?

A. Well, they did not say anything but probably they knew it all right. That was the trouble, and I then made up my mind I would try some other plan, and I put in this chimney and it was then I thought of the damper. Just to show you how delicate this thing is after all, in spite of the fact that it is a plain, simple, easily understood system which does not require much looking after, I will mention one feature. In the big shaft which I have mentioned, there were two doors, in the side, for putting down hay and straw, and if at any time one of these doors was left open, even a couple of inches, you could tell it the moment you went into the stable. I used to say to my man, the moment I went into the stable in the morning, 'you have one of those doors

open, this morning,' I would walk over and look up and sure enough there would be one of them an inch or so open, leaving an opening into the loft. That operated like a leak in the chimney, and was enough to destroy the updraught which really is initiative of the whole thing. The 'U' pipes are very good, but in order to carry off the foul air and keep the 'U' pipes working properly, you must have the updraught; they are no good without it.

By Mr. Walsh :

Q. I would like to ask this in reference to the ventilation and also in reference to the health of the animals. I had a livery stable where there was hay above and a number of horses underneath, and I would like to ask whether the persipration of the animals ascending will injure the hay ?

A. I think it is very important that there should be no communication whatever between the animals and their food supply in store. You take the conditions connected with influenza and strangles, conditions which we were discussing the other day, and with glanders, where the animal is expiring minute particles which are being carried up by the current of warm air, and which going up through, and settling on that hay are injurious and liable to spread disease; not only that it injures the fodder as food, because it has a tendency to cause mould. I think it is important that there should be absolutely no communication between the stable and the loft above, except such as can be absolutely controlled.

By Mr. Martin (Wellington):

Q. You do not think there is any danger of its passing through the ordinary floor ?

A. Not through a good floor, but I think a floor of that kind should be tongued and grooved.

Q. Double 1-inch floor ?

A. Yes, if with broken joints. I am a strong advocate of the importance of an air space between the stable and the loft, because sometimes your loft gets bare and then you will have condensation, no matter what sort of ventilation you may have you are almost bound to have a certain amount of condensation if there is a cold floor without an air space above the horses. If you can ceil a building it helps the ventilation tremendously for the reason I have already mentioned and for another one, namely, that between the joists there is always a cushion of dead foul air, which remains there, hangs there, whereas if the building is ceiled there is a fine steady flow of air to the chimney.

Q. What temperature do you consider a stable should be kept in ?

A. I think anywhere above freezing point. I think thirty-two to forty degrees is high enough. I would not like to keep animals tied up in a freezing temperature, although I believe in many cases they would be more healthy than otherwise. Still, as a matter of ordinary comfort, a stable properly constructed can be kept well supplied with pure air even in cold weather without a lower temperature than thirty-two degrees.

Q. Have you ever found tuberculosis in hogs ?

A. Yes, quite frequently.

By Mr. Wilson (Russell):

Q. Was there anything said about tuberculosis being sent from one animal to another through taking water from the same place ? I was not here at the commencement of your address ?

A. I did not go into a lengthy disquisition on tuberculosis at all. I did not think it was advisable.

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By Mr. Chisholm (Antigonish):

Q. Isn't it a general belief that in order to get a good flow of milk you have to have the temperature fairly high ?

A. Yes. There is a reason for that. I think the principal reason for the strong grasp that that belief has on so many people, is this : you take an animal that has been kept up at a temperature of sixty or seventy degrees, a milking animal, and put her in a lower temperature, the flow of milk will immediately decrease. There is no doubt about that. But of course if you take a plant out of a hothouse that has been in a temperature of seventy and put it into a building where the temperature is thirty-five, there will be considerable shrivelling and shrinking for sometime, whereas if the plant had been growing at a temperature of thirty-five that would not be noticeable. It is with the object of finding out the truth in a definite way to be placed before the committee that the experiment to which I alluded is being carried on at the farm.

Q. Don't animals require more food in cold weather than in mild weather ? doesn't that go to show how the fairly high temperature is advisable from an economic point of view ?

A. Yes. I am not posing as an absolute authority on this question, but I have already said that there is an experiment going on to endeavour to demonstrate the facts in regard to both of the points which you have mentioned. I am simply waiting until we get the result.

The CHAIRMAN.—The doctor has another subject to bring before the committee, that of hog cholera.

WITNESS.—Yes, that is the last.

HOG CHOLERA.

It is gratifying to be able to report a further improvement in the condition of affairs as regards the prevalence of hog cholera in the Dominion and especially in the eastern provinces. Strict adherence to a definite policy in dealing with this troublesome malady has enabled us to almost completely stamp it out so far as outbreaks elsewhere than in the quarantined area are concerned. In the area referred to, which comprises a number of townships in the counties of Essex and Kent, and the Indian reserve known as Walpole island, in the county of Lambton, the number of outbreaks which have occurred since the date of my last report has been so small compared with the records of previous years that there is good ground for the hope that it will be possible to remove, at the close of the present season, even the slight restrictions still maintained against the movement therefrom of hogs for purposes other than immediate slaughter. As the disease has been gradually brought under control the restrictions have, from time to time, been made correspondingly less stringent until at the present time they interfere to a very slight extent with the general trade in hogs, although they still bear somewhat hardly on one or two individuals who are engaged in raising pure-bred animals, the only available market for which is, as matters now stand, within the quarantined area.

DEPARTMENTAL ORDER, MAY 1, 1905.

No change was made in the restrictions from the date of my last report until May, 1905, when the following ministerial order was issued :—

DOMINION OF CANADA,
DEPARTMENT OF AGRICULTURE,

Notice is hereby given that under the provisions of 'The Animal Contagious Diseases Act, 1903,' I do hereby declare that my order of date March 7, 1904, and

amendments thereto regulating the movement of hogs into or out of the quarantined area comprising certain townships in the counties of Kent and Essex, and the island known as Walpole island, in the county of Lambton, are hereby rescinded and the following substituted therefor:—

On and after May 15, 1905, the movemen tof live hogs from the area comprising the townships of Camden, Howard, Harwich, Chatham, Raleigh, Dover East and West, and Tilbury East, in the county of Kent, Tilbury West, Tilbury North, Rochester and Maidstone, in the county of Essex, and the island known as Walpole island, in the county of Lambton, is forbidden, except under the following conditions :—

1. All shipments of live hogs from the said district must be consigned direct to a slaughter house or packing house equipped with the proper facilities for the slaughter and detention of such hogs in a manner satisfactory to the inspectors of this department.

2. Shippers must notify the nearest inspector not less than forty-eight hours previously of the exact time and place of intended shipment.

3. Each carload or part thereof of such shipments must be accompanied by a certificate of inspection signed by one of the authorized inspectors of this department, stating that the hogs comprising such carload, or part thereof, are free from disease and in every way fit for immediate slaughter.

4. All cars used for the conveyance of such shipments must be cleansed and disinfected in a manner satisfactory to the inspectors of this department, after being unloaded and before being again used for the conveyance of animals or other articles, and all way bills accompanying such shipments shall have gritten across the face thereof a notification that the said cars are to be cleansed and disinfected in the manner aforesaid.

Information regarding inspectors, necessary notifications and other details may be obtained from M. B. Perdue, veterinary inspector, Chatham.

Owners and shippers of hogs are earnestly requested to assist the officers of this department in the proper enforcement of this order.

(Sgd.) SYDNEY FISHER,
Minister of Agriculture.

OTTAWA, May, 1, 1905.

At the same time authority was given to a number of veterinarians, living in proximity to railway stations within the district described, to inspect and grant certificates for shipments of hogs, when fulfilling the requirements of the order.

Several isolated outbreaks have occurred in places outside of this area and in these it has been difficult to account for the origin of infection. It is possible, however, that the disease was conveyed by cars previously used for the carriage of American hogs, although every possible precaution was adopted to lessen the danger from this source. What would, in all probability, have proved a most serious outbreak was narrowly averted in November, 1904, when the disease made its appearance in the quarantine station at Point Edward among hogs returning from the St. Louis Exposition. On this occasion four valuable animals died, while twenty-seven had to be slaughtered in quarantine, and while the loss was heavy it was trifling in comparison with that which would have probably followed had the animals in question been permitted to proceed direct to the establishments of their owners.

ORIGIN OF HOG CHOLERA IN BRITISH COLUMBIA.

While on the subject of infection from American sources, I may say that the theory advanced last year as to the origin of outbreaks occurring in British Columbia, viz., the infection of the Calgary stock yards by hogs unloaded there when in transit from Minnesota to Seattle, has received striking corroboration. Through Dr. Tolmie,

our chief inspector in British Columbia, it has been ascertained that the animals in question were found to be diseased on reaching their destination, thus completing the chain of evidence set forth in my last report.

I regret to say that the disease still lingers in the Pacific province, for while it has apparently been stamped out on Vancouver island, it has repeatedly appeared on the mainland near the coast. These outbreaks, while difficult to trace, are so far as I can judge, due to importations from across the line. One outbreak was dealt with in Yukon Territory, the affected animals having been taken from near Mission Junction, British Columbia.

IMPORTATION OF HOGS FOR SLAUGHTER.

In April, 1905, a number of Canadian packing houses began the importation of American hogs for slaughter in bond, advancing as a reason for so doing the scarcity and consequent high price of Canadian raw material. This new departure called for prompt action with a view to reducing the risk of introducing infection to the lowest possible point. As most of the purchases were made in Buffalo and Detroit, an inspector was stationed at the former place, while at the latter animals were examined by our regular officers at Windsor. Hogs bought in Chicago were inspected at Port Huron before entering Canada. The adoption of this plan obviated the necessity of inspecting at the frontier with the consequent risk of infection through other animals using the yards and chutes on the Canadian side, while it, at the same time, gave our officers a better chance to reject doubtful animals, or those which were or had been in contact with diseased stock. Shipments had to be loaded in clean cars fitted with ter inch bottom boards and could be consigned direct only to packing houses and slaughter houses. Arrangements were made for the thorough cleansing and disinfection of all such cars immediately after being unloaded at destination points, and although this precaution involved a great deal of extra correspondence and other work it was apparently well worth the trouble taken to ensure its thorough enforcement. While as suggested above, this trade may have been responsible for some of the few outbreaks which occurred in unusual places, it is gratifying to be able to report that, so far as destination points are concerned, I am not aware of any cases of hog cholera having been detected either as a result of the importations or otherwise. That the trade was accompanied by serious risk, is, however, beyond question, and I was greatly relieved by the decision reached in December, to forbid altogether the importation of American hogs for slaughter. At the same time the period of quarantine was very properly increased from fifteen to thirty days while further restrictions as to certificates of health were enforced on importers.

In order to lessen the risk of infection through the heavy transit trade in hogs from western points to Buffalo and elsewhere, it was decided early in the season to adopt more stringent regulations for its control and the following orders were accordingly issued :—

REGULATIONS REGARDING TRANSPORTATION OF ANIMALS BETWEEN CANADA AND THE UNITED STATES.

By departmental order in virtue of Order in Council, March 30, 1904.

1. All stock cars intended for the conveyance of animals from any point in Canada to the United States, or for transit through United States territory to any other part of Canada, must be thoroughly cleansed and disinfected before such animals are placed therein.

2. All cars conveying animals into Canada from the United States, whether such animals are intended for points in Canada or for transit to some other part of the United States, must be inspected, and unless found in a clean and sanitary condition, will be returned to the United States.

3. All empty stock cars, whether of Canadian origin or not, entering Canada from the United States must, if not already showing evidence of having been so treated, be thoroughly cleansed and disinfected to the satisfaction of the inspectors of this department, otherwise they will be returned to the United States.

4. Stock cars which have conveyed animals from the United States to points in Canada must be thoroughly cleansed and disinfected immediately after being unloaded, and before being returned to the country whence they came.

5. Animals intended for export to the United States, or for passage in bond through that country for export to other countries, may be inspected at such points and under such conditions as the minister may from time to time order.

6. After May 31, 1905, all cars conveying swine from the United States into Canada, whether intended for transit to some other part of the United States, or to points in Canada, must be fitted with 10-inch foot boards or in a manner satisfactory to the inspectors of this department.

This regulation shall not apply to swine which have undergone the period of quarantine provided for in section 45 of the Order in Council of March 30, 1904.

7. The practice of douching or drenching with water, United States hogs, or cars containing United States hogs, while in transit through Canada is strictly prohibited.

8. United States hogs while in transit through Canada, must not be unloaded from cars containing them on any pretext whatever.

9. Any animal dying from any cause whatever when in transit through Canada from one point in the United States to another point in that country, must not be removed from the car in which it died while in Canadian territory.

J. G. RUTHERFORD,
Veterinary Director General.

Health of Animals Branch,
Department of Agriculture,
Ottawa.

INSPECTION OF HOGS ENTERING CANADA FOR TRANSIT.

To whom it may concern :—

Under the authority of section 57 of the Quarantine Regulations authorized by Order in Council, March 30, 1904, I hereby give notice that all hogs entering Canada for transit and all cars conveying such hogs must be inspected by the inspectors of this department, immediately after entering Canadian territory. Any cars containing hogs showing evidence of disease and any cars which are dirty, or which do not, in the opinion of the inspector, meet in every way, the requirements of the regulations of this department are to be immediately returned to the United States.

All inspections, as provided above, must be made between the hours of 8 a.m, and 4 p.m.

(Sgd.) GEO. F. O'HALLORAN,
Deputy Minister.

Department of Agriculture,
Ottawa, April 10, 1905.

As I was and am convinced that, under ordinary conditions, it is impossible to examine at night in a satisfactory manner, cars of hogs or other stock without much better lighting facilities than are to be found in the average railway yard, the hours of inspection were fixed as above to avoid the necessity of changing them several times in each year as the period of daylight increases or diminishes. The new regulations evoked a good deal of hostile criticism, but as the interests involved

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were of the first importance, it was not deemed advisable to recede from the position taken. An offer made by the Michigan Central Railway Company to supply special lighting facilities was accepted on condition that the arrangment proposed was found to work satisfactorily. After a thorough trial the regulations were amended so as to provide night inspection for any company furnishing satisfactory lighting facilities. In order to meet the requirements of the traffic under these conditions, it was necessary to appoint a second inspector at Windsor, since which time everything appears to have been managed without friction.

PROGRESS MADE IN SUPPRESSING HOG CHOLERA.

The following figures show the progress which has been made in controlling the ravages of hog cholera. It will be noted that there have been during the last seventeen months very few outbreaks in Ontario. The prevalence of the disease in British Columbia is attributable to an entirely different source of contagion, and should not, therefore, be debited against the work of the department in the older provinces.

November 1, 1901—October 31, 1902.

Province.	Outbreaks.
Ontario	313

November 1, 1902—October 31, 1903.

Province.	Outbreaks.
Ontario	344
Quebec	10
British Columbia	6
	360

November 1, 1903—October 31, 1904.

Province.	Outbreaks.
Ontario	121
Quebec	3
British Columbia	27
	151

November 1, 1904—October 31, 1905.

Province.	Outbreaks.
Ontario	46
Quebec	1
British Columbia	4
Yukon	1
	52

November 1, 1905—March 31, 1906.

Province.	Outbreaks.
Ontario	4
British Columbia	26
	30

Compensation paid in fiscal year,			1901-02	$15,962 97
"	"	"	1902-03	36,029 75
"	"	"	1903-04	21,352 35
"	"	"	1904-05	7,042 73
First half of		"	1905-06	839 34

In considering the reduction in the amount of compensation paid it should not be forgotten that since August, 1904, the rate paid has been two-thirds of the value of the animal whether actually diseased or only in contact, while formerly only one-third was paid for diseased animals, to which class the great majority of those slaughtered belonged. Were it not for this fact the expenditure would be even less than it is.

By Mr. Herron:

Q. Animals coming into contact are slaughtered?

A. Yes, all are slaughtered.

Q. In that case they are not paid compensation?

A. As you will understand, in the great majority of cases these animals are not in a fit condition to be used as pork. Whenever they are fit to be used as pork our inspectors have instructions to class them for that purpose if they are found healthy when, of course, compensation is withheld.

By Mr. Wilson (Russell):

Q. What is the first noticeable symptom?

A. I will give you a bulletin on it. I would prefer not going into a discussion of it, if you don't mind.

Witness discharged.

Having examined the preceding transcript of my evidence, I find it correct.

J. G. RUTHERFORD,
Veterinary Director General.

Department of Agriculture,
Ottawa, April 10, 1905.

our chief inspector in British Columbia, it has been ascertained that the animals in question were found to be diseased on reaching their destination, thus completing the chain of evidence set forth in my last report.

I regret to say that the disease still lingers in the Pacific province, for while it has apparently been stamped out on Vancouver island, it has repeatedly appeared on the mainland near the coast. These outbreaks, while difficult to trace, are so far as I can judge, due to importations from across the line. One outbreak was dealt with in Yukon Territory, the affected animals having been taken from near Mission Junction, British Columbia.

IMPORTATION OF HOGS FOR SLAUGHTER.

In April, 1905, a number of Canadian packing houses began the importation of American hogs for slaughter in bond, advancing as a reason for so doing the scarcity and consequent high price of Canadian raw material. This new departure called for prompt action with a view to reducing the risk of introducing infection to the lowest possible point. As most of the purchases were made in Buffalo and Detroit, an inspector was stationed at the former place, while at the latter animals were examined by our regular officers at Windsor. Hogs bought in Chicago were inspected at Port Huron before entering Canada. The adoption of this plan obviated the necessity of inspecting at the frontier with the consequent risk of infection through other animals using the yards and chutes on the Canadian side, while it, at the same time, gave our officers a better chance to reject doubtful animals, or those which were or had been in contact with diseased stock. Shipments had to be loaded in clean cars fitted with ten inch bottom boards and could be consigned direct only to packing houses and slaughter houses. Arrangements were made for the thorough cleansing and disinfection of all such cars immediately after being unloaded at destination points, and although this precaution involved a great deal of extra correspondence and other work it was apparently well worth the trouble taken to ensure its thorough enforcement. While as suggested above, this trade may have been responsible for some of the few outbreaks which occurred in unusual places, it is gratifying to be able to report that, so far as destination points are concerned, I am not aware of any cases of hog cholera having been detected either as a result of the importations or otherwise. That the trade was accompanied by serious risk, is, however, beyond question, and I was greatly relieved by the decision reached in December, to forbid altogether the importation of American hogs for slaughter. At the same time the period of quarantine was very properly increased from fifteen to thirty days while further restrictions as to certificates of health were enforced on importers.

In order to lessen the risk of infection through the heavy transit trade in hogs from western points to Buffalo and elsewhere, it was decided early in the season to adopt more stringent regulations for its control and the following orders were accordingly issued :—

REGULATIONS REGARDING TRANSPORTATION OF ANIMALS BETWEEN CANADA AND THE UNITED STATES.

By departmental order in virtue of Order in Council, March 30, 1904.

1. All stock cars intended for the conveyance of animals from any point in Canada to the United States, or for transit through United States territory to any other part of Canada, must be thoroughly cleansed and disinfected before such animals are placed therein.

2. All cars conveying animals into Canada from the United States, whether such animals are intended for points in Canada or for transit to some other part of the United States, must be inspected, and unless found in a clean and sanitary condition, will be returned to the United States.

3. All empty stock cars, whether of Canadian origin or not, entering Canada from the United States must, if not already showing evidence of having been so treated, be thoroughly cleansed and disinfected to the satisfaction of the inspectors of this department, otherwise they will be returned to the United States.

4. Stock cars which have conveyed animals from the United States to points in Canada must be thoroughly cleansed and disinfected immediately after being unloaded, and before being returned to the country whence they came.

5. Animals intended for export to the United States, or for passage in bond through that country for export to other countries, may be inspected at such points and under such conditions as the minister may from time to time order.

6. After May 31, 1905, all cars conveying swine from the United States into Canada, whether intended for transit to some other part of the United States, or to points in Canada, must be fitted with 10-inch foot boards or in a manner satisfactory to the inspectors of this department.

This regulation shall not apply to swine which have undergone the period of quarantine provided for in section 45 of the Order in Council of March 30, 1904.

7. The practice of douching or drenching with water, United States hogs, or cars containing United States hogs, while in transit through Canada is strictly prohibited.

8. United States hogs while in transit through Canada, must not be unloaded from cars containing them on any pretext whatever.

9. Any animal dying from any cause whatever when in transit through Canada from one point in the United States to another point in that country, must not be removed from the car in which it died while in Canadian territory.

J. G. RUTHERFORD,
Veterinary Director General.

Health of Animals Branch,
Department of Agriculture,
Ottawa.

INSPECTION OF HOGS ENTERING CANADA FOR TRANSIT.

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Ottawa, April 10, 1905.

APPENDIX No. 2

ADDENDUM.

On the completion of the preceding evidence, on the conservation of the health of domestic animals, by Dr. Rutherford, Veterinary Director General, before the Select Standing Committee on Agriculture and Colonization, the following resolution was moved by Mr. Lewis, seconded by Mr. Walsh :—

'That the thanks of this committee be tendered to Dr. Rutherford, for the extensive and valuable information upon the diseases of domestic animals, he has laid before the committee, in the three days upon which he has appeared before us.'

Motion unanimously adopted, and presented to Dr. Rutherford, *pro forma,* by the chair.

Committee Room 62,
House of Commons,
May 11, 1906.

The above certified a true copy from the business records of the committee.

J. H. MACLEOD,
Secretary to Committee.

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